MONTANA FISH, WILDLIFE & PARKS
PROJECT PERFORMANCE REPORT

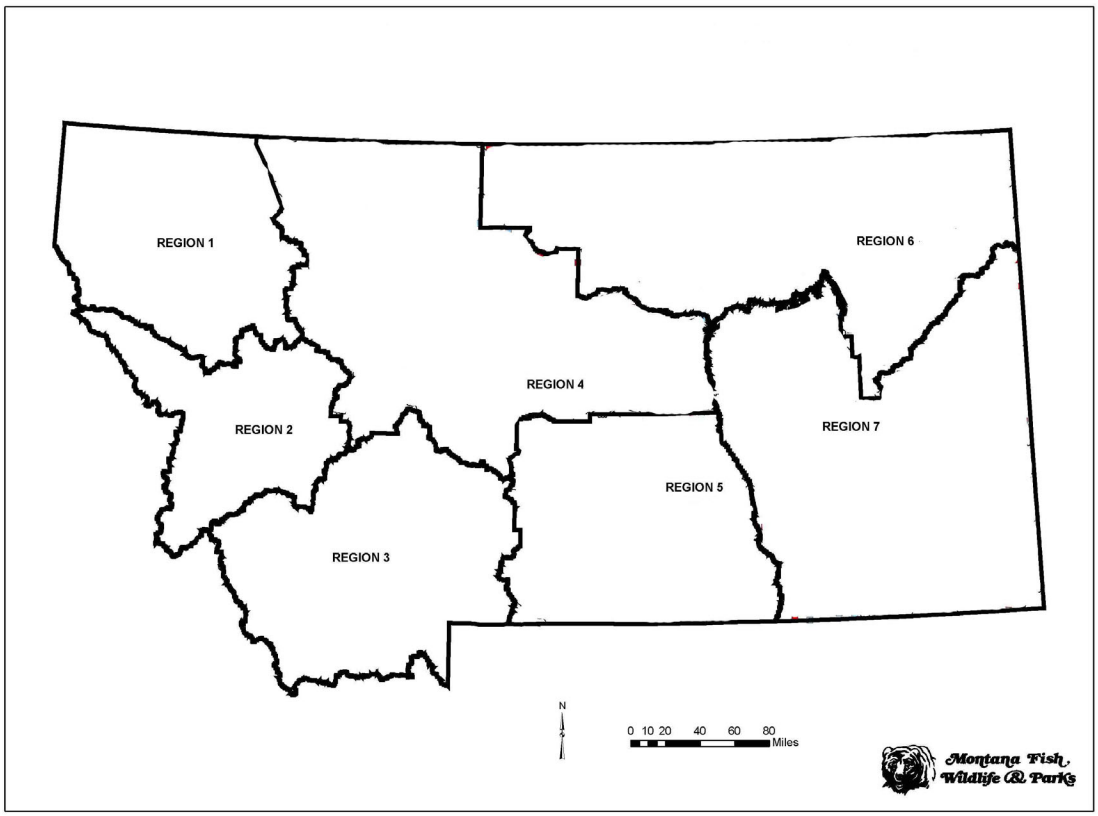
STATE:	**Montana**
GRANT TITLE:	**Native Prairie Fish Survey and Inventory (2006)**
PERIOD COVERED:	**November 1, 2005 through December 31, 2006**
DATA COLLECTION:	**Region 4 (Lucas Bateman, Toby Tabor)** **Region 5 (Mike Burda, Kayhan Ostovar),** **Region 6 (Bob Lipscomb, Nick Wormgoor),** **Region 7 (D.J. Drieling, Erika McKay, Tracey Nayes).**
PREPARED BY:	**Kayhan Ostovar, Montana Fish, Wildlife and Parks** **(Photographs by K. Ostovar)**
Date:	**February 15, 2007**

M. Burda on Simmons Creek, Region 5.

Introduction

In 2002, an analysis of Montana Fish, Wildlife and Park's (FWP) Montana Rivers Information System (MRIS) database revealed that more than 4,200 prairie streams, comprising more than 18,000 stream miles in the Montana database, had not been surveyed. The overwhelming majority of these waters are small, warm-water prairie streams located in the eastern half of Montana. (Figure 1 – FWP Regions 4,5,6,7 undertook this survey effort.) Prairie streams are a highly endangered resource (Dodds et al. 2004) in one of the most endangered biomes on the North American continent (Samson and Knopf 1994). There is a strong likelihood that many contain intact, diverse assemblages of native fish, reptiles and amphibian species. Therefore, it was decided that it was important to survey these prairie streams to gain a greater understanding of the fisheries fauna and herpetofauna that occur there. After four years of survey work, a large amount of baseline information has been collected. Some of this information has already been used to generate a comprehensive plan that FWP agreed to develop in compliance with the State Wildlife Grants Program (SWiG). This baseline data will also enable resource managers to better understand and manage prairie species and their habitats (McDonald, 2003).

Figure 1.
Montana Fish, Wildlife and Parks Regions 4, 5, 6 and 7 in eastern Montana.



While some regions still have streams that have not been surveyed, a majority of the streams have been surveyed on at least one site. Some regions decided to gain a better understanding of temporal and elevation differences on species distribution in streams. This was accomplished by setting up multiple sample sites from the mouth to the headwaters and sampling them during different seasons. The results from four years of surveys have raised further questions about prairie fish species assemblages and herpetofauna distributions in eastern Montana. Most importantly, it is now much easier to see where gaps in our knowledge base still exist, and what threats to the fauna are currently present in this ecosystem.

Objective

The primary objective of this project was to inventory and document the occurrence and distribution of native fish species in prairie streams of eastern Montana, and to gather baseline data for developing Montana's comprehensive fish and wildlife plan (McDonald, 2003). A secondary objective was to determine the presence and distribution of reptile and amphibian species in order to better complete the FWP and National Heritage Program's joint Point Observation Database (POD).

Expected Results and Benefits

The expected benefits of this project included:

- Filling in data gaps on distribution and occurrence of native prairie fish, as well as amphibians and reptiles.
- Determining where intact assemblages of native fish species occur.
- Increasing knowledge about the distribution of sensitive species.
- Gathering information on the spatial and temporal use of prairie streams by native fish.
- Gathering baseline data to respond to resource pressures such as land management practices, coal bed methane extraction, bait fish seining and urbanization (McDonald, 2003).

Methods

FWP technicians from administrative Regions 4, 5, 6 and 7 originally set out to survey randomly selected sites. However, it became apparent after the first couple of years that time was wasted with this technique since many of the sites turned out to be dry. Due to an extended drought, it was decided to first survey and scout for sites with water, either on public lands or to seek permission from private landowners, before designating a survey site. Field technicians obtained permission to access sample sites on private land by telephoning or personally meeting with landowners and explain basic survey information. If access was denied or if a site was dry, BLM maps were used to determine the nearest access to a wet section on public land or the Montana Cadastral Mapping Program (http://gis.doa.state.mt.us/) was used to determine other landowners to contact on the same drainage.

FWP fisheries staff from all four regions chose survey sites within their region based on various factors. Sites located on public lands that were easily accessible by county roads were sampled. Fisheries staff also chose sample sites in order to update historical data. Each administrative region chose specific sample sites to further the knowledge of land management and stream use. Region 4 selected primarily new sites that had not been previously sampled, although they did resample five streams at different locations and times. From the species composition at their sites it also appears they were looking at the prairie fish/mountain stream transition zone at many of their sites (Tabor 2006). Region 5 included many streams that traditionally serve as irrigation returns to attempt to understand the impact of irrigation and urbanization on species distribution in their region. Region 5 also extended their sampling season until the end of October to survey many of these streams after the ditch water had been shut off. Region 6 focused heavily on better understanding the Redwater River system within their region with over 40% of the fish captured coming from this river. In order to facilitate sampling on a larger body of water they utilized a variety of techniques including boom shocking and gill nets. Region 7 continued to survey new sites within their region as well as focusing on the Powder River Coalbed Methane Basin (CBM) streams, which are currently, or may be, subject to CBM discharge water

After access was granted, sites were located using a Garmin eTrex Vista GPS and BLM maps. Longitude and latitude were taken at the middle of the survey area and pictures of the site were taken with a digital camera. If water was located a survey perimeter of 300 meters was marked off and fish and habitat sampling were completed following Bramblett's prairie stream sampling protocol (2002) (Appendix B). Water quality sampling varied by region but may have included one or all of the following parameters: conductivity, dissolved oxygen, salinity, pH and temperature. All water quality sampling was completed prior to fish sampling in order to ensure accurate readings. Fish were surveyed at each site using, one of three, ¼" mesh seines that was appropriate for the depth and width of the stream channel. A total of 300 meters of the stream was seined at each wetted site. Captured fish were identified using, A Field Guide to Montana

Fishes (Holton and Johnson 2003). Lengths (mm) from 20 randomly selected individuals of each species were recorded. For all unknown fish, *Hybognathus sp*. and *Phoxinus sp*. at least twenty voucher specimens were preserved to take to the lab for later identification. Amphibians and reptiles caught in the seine were identified, counted, documented, and released. All herpetological observations made during the fish and habitat sampling portions of the survey were recorded. Amphibians and Reptiles of Montana (Werner et al. 2004), was used for reference in reptile and amphibian identification. Examination of habitat variables included measuring channel dimension as well as substrate size and type. All of the fish, amphibian, reptile and habitat data was recorded on "Rite in the Rain" data sheets (Appendix C).

Results

The prairie stream field season began in March and ended at the end of October. In about eight months 502 sample sites were visited. Sixty seven percent of the sites were located on private property. The remaining sites were located on Bureau of Land Management (BLM), State, United States Fish and Wildlife Service, National Forest Service and National Park Service Lands. In general, access to private land was granted and only refused five times in all regions combined. Where water was present, fish or herps were located over 80% of the time. Of the 502 sites, 306 contained either fish or herps (Table 1). The data from these 306 sites is listed in detail by region and alphabetically by stream and site number (Appendix A).

Table 1.

2006 PRAIRIE STREAM SUMMARY STATISTICS BY REGION

	R-4	R-5*	R-6	R-7	Total
# of Sites Visited	143	126	131	102	**502**
# of Sites with Water and Fish and/or Herps **	**61**	**98**	**90**	**57**	**306**
#Sites with Water and Fish	56	93	70	48	**267**
# of Dry Sites	66	20	40	35	**161**
# of Sites with Water and Nothing Found	21	8	21	11	**61**
# of Sites where Access Denied	1	3	1	N/A	**5**
# of Private Sites	113	91	63	70	**337**
# of Public Sites	30	34	68	32	**164**
 M. Burda and K. Ostovar seining a side channel, Yellowstone River			 Great plains toad – Region 5		
Total # of Fish Sampled	17,669	71,376	59,128	16,711	**164,884**
Total # Nonnative Fish	482	5,064	609	2,582	**8,737**
Total # Fish Species	20	35	30	29	**45**
Total # Native Fish Species	11	21	24	20	**27**
Percent Native Fish	97.28%	92.91%	98.97%	84.55%	**93.43%**
Sites with Greater than 25% Nonnative Fish	5	10	3	6	**24**
Sites with 100% Native Fish Species	36	32	38	23	**129**
Total # Herpetofauna Species from Sites	5	16	8	10	**16**

**Two sample sites located within Region 7 boundaries on Tulluck Creek to assist Region 7. See Table 2 for a recalculation of these numbers by region.*

*** These sites are listed alphabetically by stream and region in data sheets in Appendix A.*

Nonnative Fish

A total of 164,884 fish were sampled. The number of fish species recorded per region ranged from a low of 20 in Region 4 to a high of 35 in Region 5 (Table 1). Forty five species of fish were found in all four regions combined. Eighteen species or 6.57% are nonnative to Eastern Montana. Of the 6.57% nonnative fish, 30.87% was composed of green sunfish, 25.36% plains killifish, 18% black bullheads and 14.88% common carp. It is clear that a small number of streams have high numbers of established nonnative fish populations (Sites with greater than 25% nonnative fish are located in only 24 of the 306 sites with fish and/or herps).

Two of these sites with a high number of nonnative fish were surveyed by Region 5 in the territory of Region 7 in order to assist their effort. They were located on Tulluck Creek, which is dominated (59%) by nonnative species such as, common carp, green sunfish, pumpkinseeds, plains killifish and black bullheads. When considering levels of nonnative species presence by region, Tulluck Creek, should be considered part of Region 7 (Table 2, Figure 3).

Table 2.

Native Species Composition for Region 5 and 7.
Tulluck Creek Data included within Region 7 Summary.
For regional evaluations these figures should be used.

	Reg 5	***Reg 7***
Total # of Fish Sampled	66,619	21,468
Total # Nonnative Fish	2,257	5,389
Total # Fish Species	34	29
Percent Native Fish	**96.61%**	**74.90%**
Sites with Greater than 25% Nonnative Fish	8	8

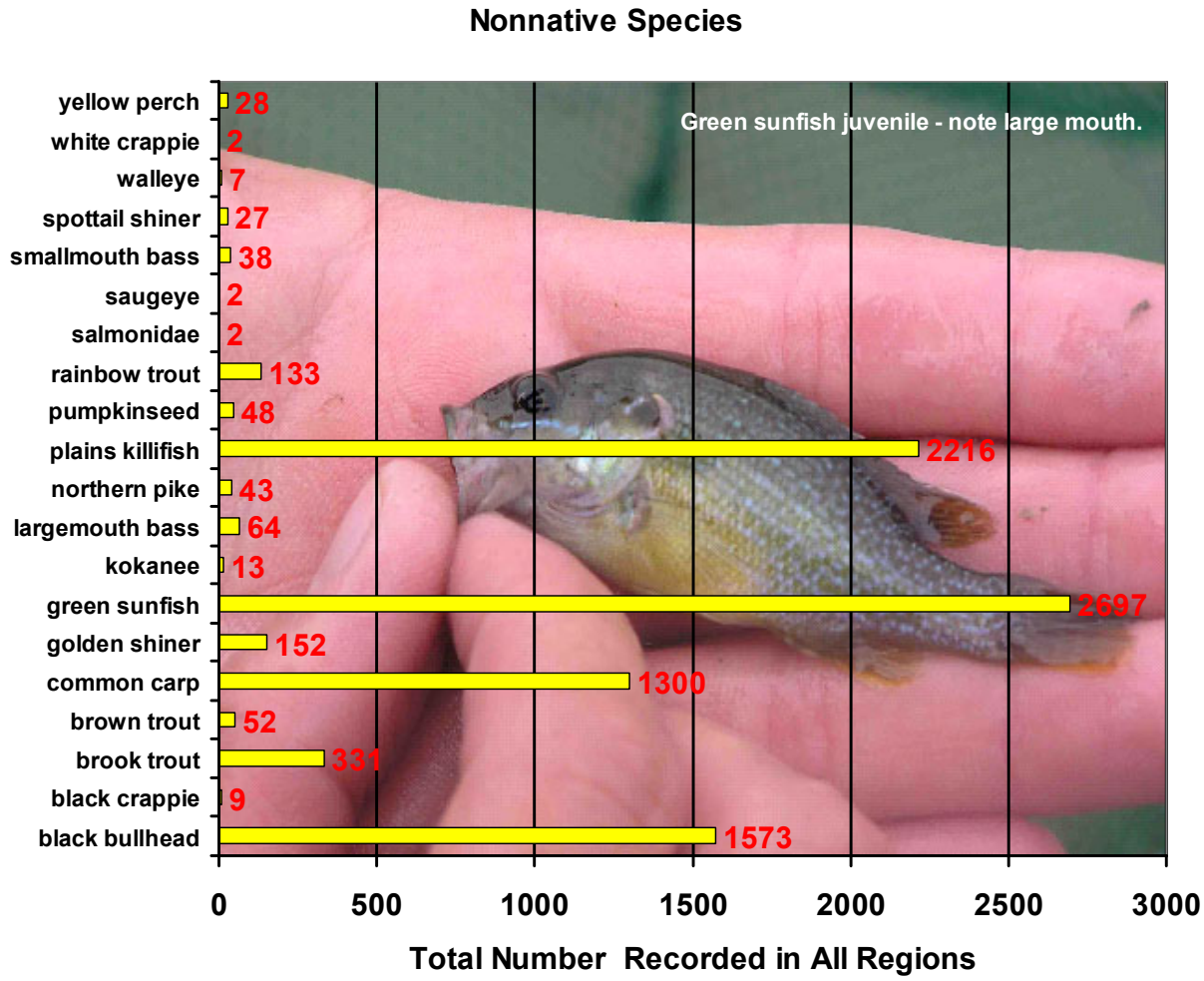
Juvenile channel catfish from Pryor Creek, Region 5

Region 7 had one of the highest numbers of sites with greater than 25% nonnative fish and the highest percentage of nonnative species, with over 25% of all fish found in Region 7 identified as nonnative. The most invasive nonnative species by number in all regions was the green sunfish (2697), with plains killifish (2216), black bullheads (1573) and common carp (1300) not far behind. Green sunfish, plains killifish and black bullheads were often found at high concentrations when they were found (Table 2, 3, and Figure 2, 3).

Figure 2. Common carp caught while spawning in upper Razor Creek, Region 5.

The highest number of nonnative species (seven) recorded at a site was in Region 5 at the mouth of Alkali Creek. Region 7 had six nonnative species recorded at the South Fork of Sandstone Creek and five nonnative species recorded at Smith Creek (Appendix A).

Figure 3. Nonnative species numbers.



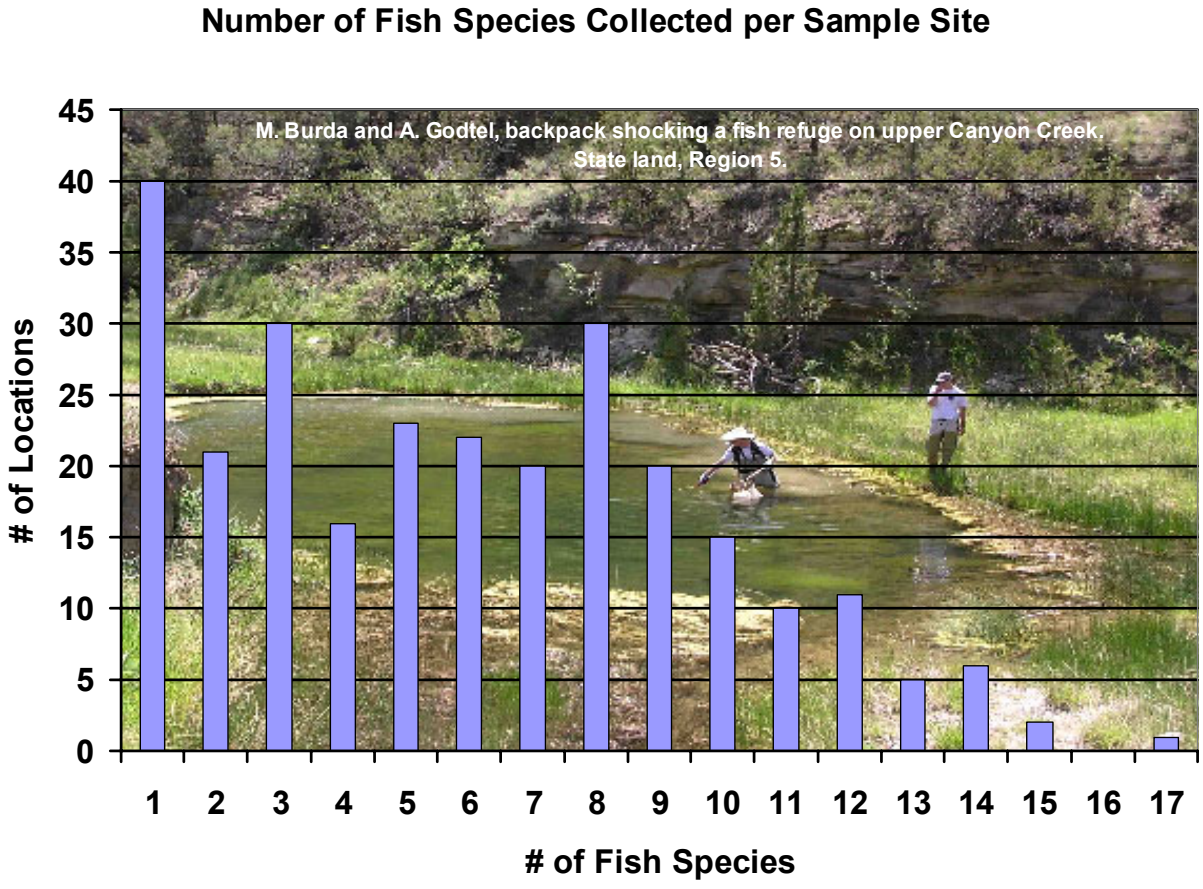
Green sunfish were present in all four regions, while black bullheads were not found in Region 4 but present in 5, and 6 and very high in 7. Plains killifish had high numbers but were found only in Region 7. Common carp were by far the most widely distributed nonnative species to be recorded and were found in all four regions, although fairly low in Region 4. Common carp were found at more than 29% of all survey sites containing fish (78 sites out of 267). (Figure 3)

Other nonnative species were found at much lower numbers and had fairly patchy distributions. Yellow perch were found in Regions 4, 5 and 7 only, and golden shiners were only recorded in regions 4 and 7. Spottail shiners were only recorded in Region 4. Largemouth bass were only common in Region 7 and smallmouth bass were regularly recorded from the Musselshell River in Region 5. Only Region 6 and 7 had records of northern pike. Region 4 and 5 recorded brown trout, brook trout and rainbow trout in several streams. This is most likely due to the higher elevation of the locations of some of their samples. Region 5 also picked up kokanee in the drain from Deadman's Basin, which connects to the Musselshell River.

Fish per Site
Of the 267 sites where water and fish were found, the average number of fish species found per site was 6.35. The fathead minnow was the most highly distributed fish, sampled in 212 or 79% of all sites, comprising over 34% of all fish sampled. The white sucker (168 sites, 10.25%), lake chub (116 sites, 9.08%) and flathead chub (64 sites, 9.53%), were the next most prevalent species, although flathead chubs were not recorded in Region 4 (Table 3, Figure 4).

Species Richness at Sites for all Fish
Region 6 had the highest diversity recorded at a single site. This was 17 species located at a site on the Redwater River. Three other sites on the Redwater River had 14 species per site. Region 5 had the next highest diversity of species at a site with 15 species being recorded at the mouth of Alkali Creek and 14 species on a Razor Creek site. Region 7 also recorded 14 species at a site on Smith Creek. These total species per site include both native and nonnative species. Forty six sites or 17.22% had over 1,000 fish recorded per site (Figure 4 and Appendix A).

Figure 4.



Fathead minnow, lake chub, white sucker, longnose dace and brook stickleback were the most widely distributed species found in all four regions with regularity. Brassy minnow and northern redbelly dace were also recorded in all four regions but were very low in number in region 7. Hybrid dace (determined by examining pharyngeal tooth structures of specimens) were positively identified in Region 4, 5 and 6 but not examined in Region 7. Long nose sucker and mountain sucker were common in Region 4 and 5 but rare or nonexistent in Regions 6 and 7.

Of particular interest were native species found only in one region. Region 6 recorded Iowa darter and pearl dace (a Tier I species of concern in Montana), which were found in no other regions (Figure 5). Region 7 found creek chubs to be common, although they were not recorded elsewhere.

Region 5 had the highest species diversity while Region 4 appears depauperate when compared to the other 3 regions with no channel catfish, emerald shiner, plains minnow, river carpsucker, sandshiner, western silvery minnow, stonecat, shorthead redhorse, and goldeye, which were all recorded in Regions 5, 6, and 7. Region 4 recorded nearly half the number of native species that the other three regions documented.

Figure 5. Pearl dace, *Margariscus margarita.*
A Tier I species of concern in Montana found only in Region 6.

Table 3. Fish species identified: total # of each species, % of total sample, # of sites and % of sites.

Common Name	Scientific Name	Total #	% of Total	# of Sites	% of Sites
fathead minnow	*Pimephales promelas*	56924	34.524%	212	79.401%
white sucker	*Catostomus commersoni*	16905	10.253%	168	62.921%
flathead chub	*Platygobio gracilis*	15720	9.534%	64	23.970%
lake chub	*Couesius plumbeus*	14971	9.080%	116	43.446%
sand shiner	*Notropis stramineus*	13682	8.298%	75	28.090%
longnose dace	*Rhinichthys cataractae*	8194	4.970%	127	47.566%
western silvery minnow	*Hybognathus argyritis*	5970	3.621%	29	10.861%
brassy minnow	*Hybognathus hankinsoni*	4997	3.031%	47	17.603%
northern redbelly dace	*Phoxinus eos*	4497	2.727%	45	16.854%
brook stickleback	*Culaea inconstans*	3505	2.126%	64	23.970%
green sunfish *	*Lepomis cyanellus*	2697	1.636%	42	15.730%
plains killifish *	*Fundulus zebrinus*	2216	1.344%	8	2.996%
emerald shiner	*Notropis atherinoides*	1930	1.171%	27	10.112%
Hybognathus sp.	*Hybognathus sp.*	1638	0.993%	15	5.618%
black bullhead *	*Ameiurus melas*	1573	0.954%	27	10.112%
longnose sucker	*Catostomus catostomus*	1430	0.867%	52	19.476%
common carp *	*Cyprinus carpio*	1300	0.788%	78	29.213%
creek chub	*Semotilus atromaculatus*	1229	0.745%	27	10.112%
Phoxinus sp.	*Phoxinus sp.*	882	0.535%	12	4.494%
mountain sucker	*Catostomus platyrhynchus*	763	0.463%	50	18.727%
shorthead redhorse	*Moxostoma macrolepidotum*	681	0.413%	62	23.221%
hybrid dace	Hybrid dace	506	0.307%	22	8.240%
river carpsucker	*Carpiodes carpio*	360	0.218%	29	10.861%
plains minnow	*Hybognathus placitus*	342	0.207%	21	7.865%
brook trout *	*Salvelinus fontinalis*	331	0.201%	6	2.247%
channel catfish	*Ictalurus punctatus*	328	0.199%	28	10.487%
pearl dace	*Margariscus margarita*	240	0.146%	2	0.749%
golden shiner *	*Notemigonus crysoleucas*	152	0.092%	3	1.124%
mottled sculpin	*Cottus bairdi*	148	0.090%	9	3.371%
rainbow trout *	*Oncorhynchus mykiss*	133	0.081%	11	4.120%
stonecat	*Noturus flavus*	122	0.074%	32	11.985%
Iowa darter	*Etheostoma exile*	96	0.058%	4	1.498%
largemouth bass *	*Micropterus salmoides*	64	0.039%	2	0.749%
goldeye	*Hiodon alosoides*	61	0.037%	14	5.243%
brown trout *	*Salmo trutta*	52	0.032%	8	2.996%
pumpkinseed *	*Lepomis gibbosus*	48	0.029%	11	4.120%
northern pike *	*Esox lucius*	43	0.026%	13	4.869%
smallmouth bass *	*Micropterus dolomieu*	38	0.023%	5	1.873%
yellow perch *	*Perca flavescens*	28	0.017%	9	3.371%
spottail shiner *	*Notropis hudsonius*	27	0.016%	6	2.247%
kokanee *	*Oncorhynchus nerka*	13	0.008%	1	0.375%
black crappie *	*Pomoxis nigromaculatus*	9	0.005%	2	0.749%
mountain whitefish	*Prosopium williamsoni*	9	0.005%	5	1.873%
walleye *	*Stizostedion vitreum*	7	0.004%	6	2.247%
bigmouth buffalo	*Ictiobus cyprinellus*	6	0.004%	2	0.749%
smallmouth buffalo	*Ictiobus bubalus*	6	0.004%	2	0.749%
sauger	*Stizostedion canadense*	5	0.003%	2	0.749%
Salmonidae *	Salmonidae	2	0.001%	1	0.375%
Saugeye (hybrid) *	*Stizostedion canadensis x S. vitreum*	2	0.001%	1	0.375%
white crappie *	*Pomoxis annularis*	2	0.001%	2	0.749%

* indicates nonnative species.

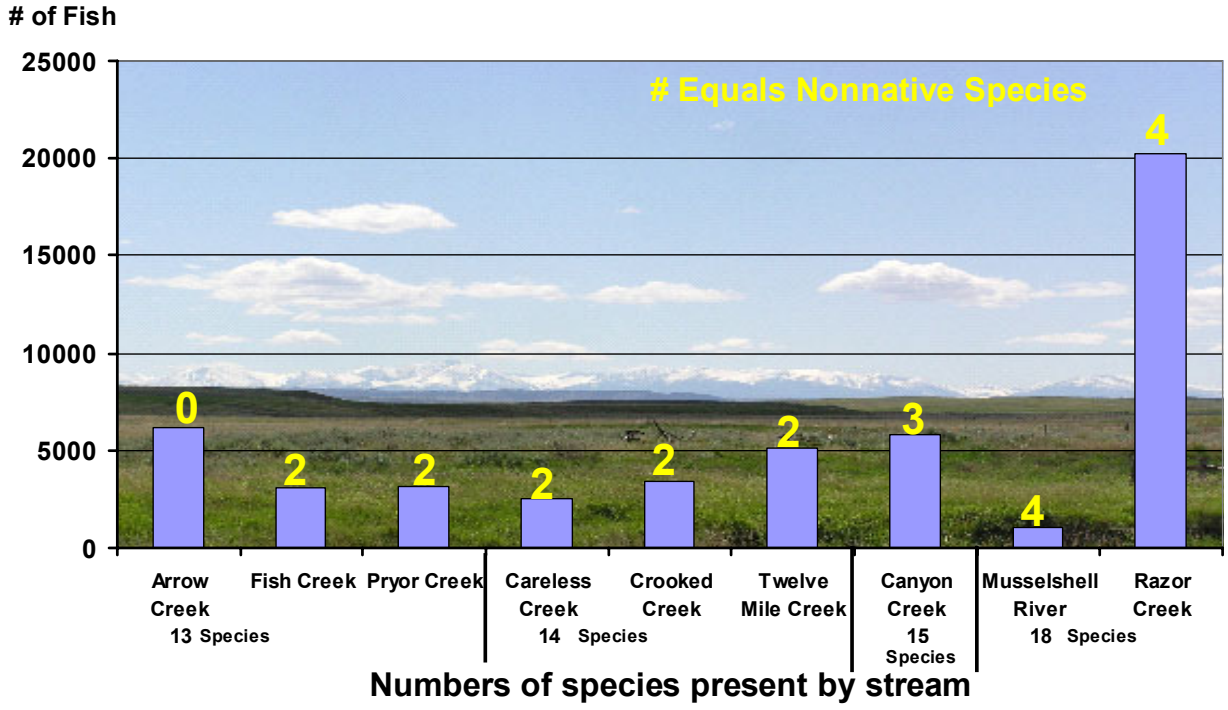
Native Species

When looking at just native species per site, two sites in Region 6 on Redwater River had 14 species and a site in Region 5 on Arrow Creek had 13 species. The highest number of fish sampled at one site was 8,594 recorded in Region 6 at Little Boxelder Creek. This stream is noteworthy with such a high density of fish, which was comprised of nine species that were all native. In addition, it included the rare Iowa darter and a species of interest, the northern redbelly dace. Region 5 had the next highest number of fish recorded at a site with 6,211 fish at Arrow Creek. This sample is of interest as it includes 13 species of fish that were all native. Sites with 100% native fish species were recorded at 36, 32, 38 and 23 sites in Regions 4, 5, 6 and 7, respectively. With all sites combined 27 native fish species were recorded this year with the greatest number (24) recorded in Region 6 and the least (11) recorded in Region 4 (Appendix A, Table 1).

Multiple Site Data Equals Complete Stream Data

All four regions conducted some multiple site visits at different locations on streams and at different periods of the sampling season to look at temporal variation. Region 5 and 6 conducted the most repeat and multiple site visits on particular selected streams. Region 6 had three streams with high sample numbers and fish species richness. Redwater River has a high diversity of fish (24 species, 19 native). While Redwater River is larger than traditionally sampled prairie streams, rivers of this size in eastern Montana have been rarely studied, and provide important data. Little Boxelder Creek resulted in a high catch of 8,594 fish with nine native species. Clear Creek in Region 6 had 2,679 fish (20 species, 19 native). Region 5 had nine streams with over 2,000 fish recorded or 15 species. These streams were sampled at multiple locations from the mouth to their headwaters (April – October) (Figure 6).

Figure 6. Region 5 summary of creeks with the highest species diversity and number of fish recorded.



Irrigation Ditches and Urbanization in Region 5

While analysis of habitat data is still pending, it is clear that small prairie streams are impacted (both negatively and positively) by irrigation in several ways. Ditches can raise the ground water table, increase runoff into streams, provide direct injection into streams or severely deplete water in streams and rivers. Stream morphology is clearly altered and evidence of blowouts into streams was documented in both spring and fall. Blowouts occur when ditch operators use streams as drains to clean out the ditch of debris or to regulate water levels in the ditch or let waters down quickly. Crayfish kills were documented on streams where blowouts had recently occurred. It is not known if mortality was related to trauma from the sheer volume of water, rapid temperature changes or possibly from chemical runoff in the irrigation water.

Urbanization is altering the delivery and use of irrigation water, in some cases resulting in higher in-stream flows during summer months as agricultural land is converted. Region 5 has several streams which flow through Billings. The headwaters or routes of these streams are largely unknown as they flow to a large extent underground. However, they were found to harbor up to eight fish species and potentially could be used as public education stream rehabilitation projects.

Four Years of Prairie Stream Surveys

In the fourth year of this study significant strides were made to complete surveys in some regions. The 164,884 fish, recorded for all four regions in 2006, is more than twice that of the last three years combined. In addition, two of the regions extended their seasons well into the fall and sampled during cooler weather. Data from these fall samples seems to show that species composition in prairie streams may change significantly with the seasons (Table 4, Figure 7).

Table 4.

Year over Year Results in all four eastern Montana Regions

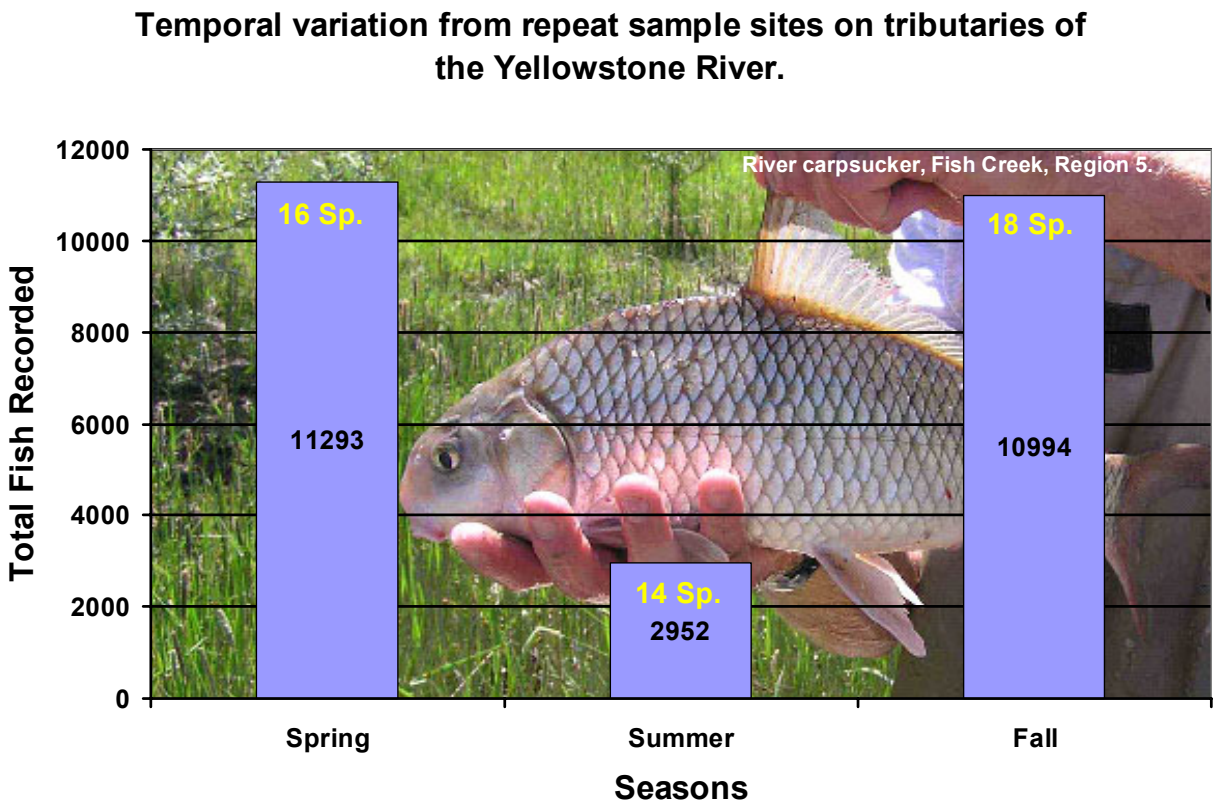
	2003	2004	2005	2006	Totals
# of Sites Visited	299	332	491	501	**1623**
# of Dry Sites	121	121	259	156	**657**
# of Sites with Water and Fish	127	161	166	267	**721**
# of Sites with Water and Nothing Found	51	50	66	66	**233**
# of Fish Species Identified	46	37	43	45	**171**
Total # of Fish Sampled	**39,693**	**52,912**	**62,148**	**164,884**	**319,637**

Figure 7. Third and final sample at the middle site of Fish Creek (Musselshell River tributary) in early October snowstorm, Region 5.

Temporal Variation on Streams in Region 5

Region 5 conducted the most repeat and multiple site samples of all regions. While more data is probably still needed to determine temporal variance of species composition in streams, we can make some assumptions based on the data from this year. To ensure consistency in the data we only included sites in the analysis where we conducted spring, summer and fall samples on tributaries of the Yellowstone River. These restrictions only left four streams for analysis; one sample location on Blue Creek (middle reach), one sample location on Five Mile Creek (middle reach), three sample locations on Razor Creek (mouth, middle and upper), and one sample location on Twelve Mile Creek (middle reach) (See Figure 8).

Figure 8. Species recorded per season and number of fish recorded on four tributaries of the Yellowstone River.



The number of fish species and density of fish in streams decreased significantly during the summer months, which also coincides with irrigation season (Figure 8). The sites re-sampled were at exactly the same locations and all had flowing water during each sampling period (spring, summer, and fall). Spring and fall samples were conducted either before or after irrigation ditches were turned on or off. We also examined individual species, increased presence or absence, during each of these sampling periods (See Table 5).

Table 5. Temporal variation of species presence and density in four tributaries of the Yellowstone River, Region 5. (0 = nonexistent, Low, Medium, High, and Very High).

18 Species	Spring	Summer	Fall
river carpsucker	0	0	Low
stonecat	0	Low	Low
emerald shiner	0	Low	Medium
yellow perch	Low	0	Low
green sunfish	Low	0	Low
pumpkinseed	Low	Low	0
common carp	Low	Low	Medium
shorthead redhorse	Low	Low	Medium
mountain sucker	Low	Low	High
brook stickleback	Medium	Low	Low
longnose dace	Medium	Low	Medium
longnose sucker	Medium	Low	High
sand shiner	Medium	Medium	Very high
western silvery minnow	High	0	Very High
fathead minnow	High	Medium	Very High
lake chub	High	Medium	High
white sucker	Very High	Low	Medium
flathead chub	Very High	Medium	High

All species showed marked declines from spring to summer sampling except for shorthead redhorse which had a slight increase and pumpkinseed which were almost nonexistent. The most dramatic increases from summer to fall were longnose sucker (4X), sand shiner (5X), common carp (10X), and mountain sucker (12X).

Western silvery minnow are worth mentioning as they were very prevalent in the spring, nonexistent in the summer and even more numerous in the fall. Fathead minnow and lake chub had a similar pattern but were still picked up in the summer although in much lower numbers. Both flathead chub and white sucker were picked up in the greatest number in the spring, lower in the summer and rising again in the fall. Emerald shiner were not picked up in the spring at all, very rare in the summer and then more prevalent in the fall. Brook stickleback exhibited an inverse relationship of presence from the other fish with the greatest numbers being recorded in the spring with decreased numbers in the summer and fall.

Of final note were two other species recorded at a site on Fish Creek, which is a tributary of the Musselshell River, and where we also sampled in the spring, summer and fall. We found brassy minnows to be at low densities in the spring, high in the summer and very low in the fall. Northern redbelly dace were found at their highest numbers in the spring decreasing in the summer and very low in the fall.

Herpetofauna Records from Survey Sites

- **Large paedomorphic tiger salamander.**

All four regions combined collected a total of 4,785 herpetofauna, with representation from 16 species, compared with 1,675 last year and 15 species (Table 6).

Eleven species of reptiles and five amphibians were recorded at sites. The northern leopard frog was the most abundant 57.68% and the most widely distributed (111 sites). The tiger salamander comprised over 25% of all herps recorded. Plains gartersnake was the most abundant reptile recorded (95). However, they were only found at 38 sites, with over 90% occurring in Region 6. Painted turtles were encountered at 31 sites in Regions 5, 6, and 7.

Table 6. 2006 Reptile and amphibian species identified at survey sites, listed by Region.

Common Name	Scientific Name	Reg 4	Reg 5	Reg 6	Reg 7	Total #	% of Sample
boreal chorus frog	*Pseudacris maculata*	11	6	8	36	61	1.27%
boreal chorus frog jv.	*Pseudacris maculata*	0	0	98	47	145	3.03%
Bufo sp.	*Bufo sp.*	0	103	0	0	103	2.15%
common gartersnake	*Thamnophis sirtalis*	3	3	0	6	12	0.25%
common sagebrush lizard	*Sceloporus graciosus*	0	1	0	0	1	0.02%
eastern racer	*Coluber constrictor*	0	1	12	0	13	0.27%
gophersnake	*Pituophis catenifer*	0	1	3	2	6	0.13%
great plains toad	*Bufo cognatus*	0	5	0	0	5	0.10%
northern leopard frog	*Rana pipens*	471	674	726	524	2395	50.05%
northern leopard frog jv.	*Rana pipens*	0	0	201	164	365	7.63%
painted turtle	*Chrysemys picta*	0	17	38	10	65	1.36%
plains gartersnake	*Thamnophis radix*	0	1	87	7	95	1.99%
snapping turtle	*Chelydra serpentina*	0	2	0	3	5	0.10%
spiny softshell	*Apalone spinifera*	0	31	0	0	31	0.65%
terrestrial gartersnake	*Thamnophis elegans*	3	20	0	0	23	0.48%
tiger salamander	*Ambystoma tigrinum*	29	47	34	0	110	2.30%
tiger salamander larvae	*Ambystoma tigrinum*	0	0	636	545	1181	24.68%
western hog-nosed snake	*Heterodon nasicus*	0	1	0	0	1	0.02%
western rattlesnake	*Crotalus viridis*	0	1	0	2	3	0.06%
Woodhouse's toad	*Bufo woodhousii*	0	14	79	38	131	2.74%
Woodhouse's toad jv.	*Bufo woodhousii*	0	0	34	0	34	0.71%
		517	**928**	**1956**	**1384**	**4785**	100.00%

M. Burda and snapping turtle, Razor Creek, Region 5.

Region 5 had the greatest species richness with 16 species of herpetofauna recorded at survey sites. Of these, four are considered Tier I species of concern, including the spiny softshell turtle, snapping turtle, western hog-nosed snake and northern leopard frog. These three reptiles are rarely encountered and serve as important records. Detailed accounts of all herpetofauna records by Region, Stream and Site can be found in (Appendix A). In addition, incidental observations of herpetofauna were recorded and sent to the POD.

Snapping Turtle and Spiny Softshell

Snapping turtle were only recorded in Region 5 and 7. In Region 5 they were only recorded on Razor Creek, but found from the mouth to the headwater pools. In region 7 two were found at Sarpy Creek and one on Pumpkin Creek. Spiny softshell were only recorded in Region 5, where three large congregation sites for spiny softshell were identified, as well as individual sightings.

Two male spiny softshell, Big Coulee Creek, Region 5. •

Trapping Spiny Softshell in Region 5

Trapping efforts were conducted during prairie stream surveys with short 4-5 hour or sometimes overnight sets. A total of 27 spiny softshell were tagged with individual metal number clips as well as four with radio-telemetry tags (Table 7 and Figure 9).

Table 7. Spiny softshell and one snapping turtle.
Tag numbers (T) and Codes (C) for Frequency 148.480.

Site	Date	Tag/Code	Sex	Size mm
Fish Creek/Musselshell Confluence	6/13/06	T-1699	M/jv.	small
Fish Creek/Musselshell Confluence	6/14/06	T-1700	F	290x360
Fish Creek/Musselshell Confluence	6/14/06	C-115	F	230x330
Fish Creek/Musselshell Confluence	6/14/06	C-114	F	245x330
Fish Creek/Musselshell Confluence	8/23/06	T-1601	F	310x400
Big Coulee/Musselshell Confluence	6/20/06	T-1620	F	96x90
Big Coulee/Musselshell Confluence	6/20/06	T-1623	M	166x150
Big Coulee/Musselshell Confluence	6/21/06	T-1673	F	320x260
Big Coulee/Musselshell Confluence	6/21/06	T-1671/C-103	F	342x260
Big Coulee/Musselshell Confluence	6/21/06	T-1624/T-1645	F	345x277
Big Coulee/Musselshell Confluence	6/21/06	T-1647	F	357x278
Big Coulee/Musselshell Confluence	6/21/06	T-1675	F	317x255
Big Coulee/Musselshell Confluence	8/23/06	T-1602	M	150x160
Big Coulee/Musselshell Confluence	8/23/06	T-1603	M	140x160
Big Coulee/Musselshell Confluence	8/23/06	T-1604	?	260x320
Big Coulee/Musselshell Confluence	8/23/06	T-1605,6	F	310x380
Big Coulee/Musselshell Confluence	8/23/06	T-1609	?	270x330
Big Coulee/Musselshell Confluence	8/23/06	T-1610	F	270x330
Big Coulee/Musselshell Confluence	8/23/06	T-1611	F	240x300
Big Coulee/Musselshell Confluence	8/23/06	T1612	F	280x360
Big Coulee/Musselshell Confluence	8/23/06	T-1677	F	280x340
Big Coulee/Musselshell Confluence	8/26/06	Recap T-1673	F	320x260
Shawmut Oxbow	7/4/06	T-1672/C-104	?	275x340
Shawmut Oxbow	7/4/06	T-1622	F	290x372
Shawmut Oxbow	8/26/06	T-1657	?	270x240
Pryor Creek (upper)	7/11/06	T-1626	F	medium
Razor Creek (middle)	7/5/06	T-1670/T-1646	Snapper	380x381

Trapping efficiency CPUE ranged from .05 to .6 spiny softshell per hour at the three locations, with only one recapture recorded during repeated trapping efforts. This indicates high populations of turtles at these concentrated sites on the Musselshell River. Breeding or nesting behavior was not observed but both male and females were caught at the sites as well as juveniles. All three sites are located on private property.

Figure 9. Affixing a radio transmitter on a large female spiny softshell.

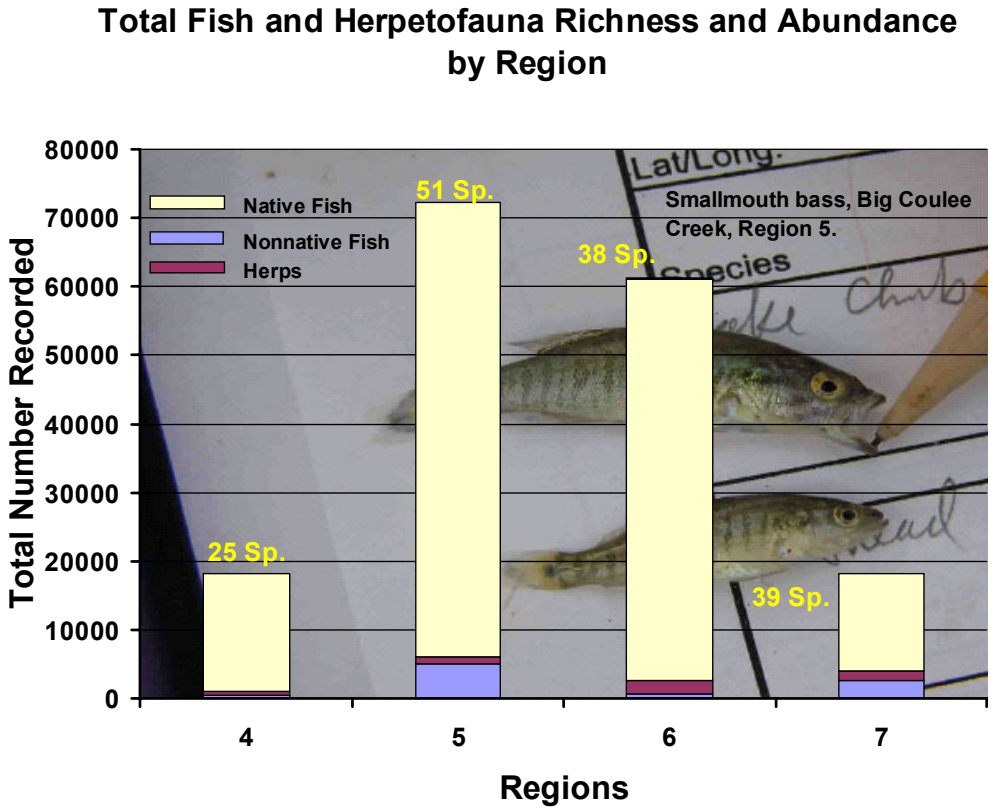
Total Richness and Abundance

Total richness for each sample site and stream is detailed in Appendix A. Total richness was calculated by adding up all species of fish and herpetofauna recorded per site and per stream when it was sampled more than once. The total richness for all four regions in 2006 was 61 species with 43 of these native to eastern Montana.

The highest richness factor recorded for each region is as follows. Region 4 had a site on Indian Creek with a factor of 11. Region 5 had five streams with a richness of 19 or greater. These were: Canyon Creek 19, Fish Creek 19, Musselshell River 20, Razor Creek 27, and Twelve Mile Creek 19. The site with the greatest richness was found on a site located on the middle of Twelve Mile Creek with a rating of 16. Region 6 had a factor of 12 on a Clear Creek site and Redwater River had a total factor of 29. Region 7 had a site on Smith Creek with a factor of 15, and two streams with high ratings (Boxelder 15, Clear Creek 17) (Appendix A).

Obviously the more sampling periods conducted on a stream the greater the possibility of a higher richness score for the creek. This makes further comparisons between these streams difficult. However, it may be useful to look at overall richness recorded by region (Figure 10).

Figure 10.



Mollusk Data from Region 5

Region 5 undertook opportunistic mollusk sampling at stream sites and submitted these specimens to Dan Gustafson, Research Scientist at Montana State University, for identification. A total of 102 specimens and seven species were identified. The only significant finding was *Lampsilis siliquoidea* (fatmucket) on Pryor Creek, which has previously not been surveyed. (Table 8). This location represents the furthest upstream location for this species.

Table 8. Mollusk Data from Region 5.

Stream	Date	Latitude	Longitude	Species	Description
Alkali Creek (Billings area)	5/8/06	45.80308	-108.47345	Helisoma ancepts	1
Alkali Creek (Billings area)	5/8/06	45.80308	-108.47345	Physella gyrina	2
Arrow Creek (upper)	5/22/06	45.90000	-108.15264	Helisoma ancepts	3
Arrow Creek (upper)	5/22/06	45.90000	-108.15264	Physella gyrina	4
Audubon Education Center	9/18/06	45.74180	-108.96710	Physella gyrina	4
Big Coulee Creek (upper)	6/22/06	46.13579	-109.34601	Helisoma ancepts	2
Big Coulee Creek (upper)	6/22/06	46.13579	-109.34601	Physella gyrina	4
Big Coulee Creek (upper)	6/22/06	46.13579	-109.34601	Sphaerium striatium	2 valves
Blue Creek	5/18/06	47.71964	-108.51406	Physella gyrina	2
Canyon Creek (upper)	5/24/06	45.79678	-108.94605	Physella gyrina	5 big - 1 diss.
Canyon Creek (upper)	5/25/06	45.78500	-108.70300	Sphaerium striatium	1
Crooked Creek	8/2/06	45.96264	-108.35209	Succinea sp.	1 large
Fish Creek	6/13/06	46.21426	-109.93342	Physella gyrina	4

Five Mile Creek	5/1/06	45.85914	-108.49313	Physella gyrina	4
Musselshell - Selkirk	9/14/06	46.46080	110.22250	Physella gyrina	6
Musselshell River (upper)	8/15/06	46.44258	-109.86302	Stagnicola elodes	1 small
Musselshell River (upper)	8/15/06	46.44258	-109.86302	Succinea sp.	1
Pryor Creek	5/17/06	45.79699	-108.29560	Sphaerium striatium	1 valve
Pryor Creek	7/12/06	45.78977	-108.29866	Sphaerium striatium	6
Pryor Creek	7/12/06	45.78977	-108.29866	Sphaerium striatium	1 valve
Pryor Creek	7/12/06	45.78977	-108.29866	Physella gyrina	7
Pryor Creek	7/12/06	45.71964	-108.51406	Physella gyrina	1
Pryor Creek	7/12/06	45.71964	-108.51406	Sphaerium striatium	1
Pryor Creek (golf course)	5/8/06	45.88552	-108.29995	Lampsilis siliquoidea	Rt V/Sm.old F.
Pryor Creek (golf course)	5/8/06	45.88552	-108.29995	Sphaerium striatium	4
Razor Creek (mouth)	7/17/06	45.95709	-108.28100	Succinea sp.	1
Rock Creek (Musselshell)	5/31/06	46.18904	-109.36060	Stagnicola elodes	2
Silvertip Creek	9/26/06	45.17457	-108.98546	Stagnicola elodes	4
Silvertip Creek	9/26/06	45.17457	-108.98546	Physella gyrina	4
Simmons Creek	8/22/06	46.08498	-109.58907	Physella gyrina	4
South Fork Big Coulee Crk.	8/15/06	46.18464	-108.99185	Physella gyrina	1
South Fork Big Coulee Crk.	8/15/06	46.18464	-108.99185	Planorbella trivolvis	1 - young
Spring Creek (Clark's Fork)	4/24/06	45.63957	-108.71584	Stagnicola elodes	8
Spring Creek (Clark's Fork)	4/24/06	45.63957	-108.71584	Physella gyrina	10 - 1 diss.
Stillwater River (Fireman's)	9/25/06	45.62434	-109.28648	Stagnicola elodes	3
Stillwater River (Fireman's)	9/25/06	45.62434	-109.28648	Physella gyrina	4
Twelve Mile Creek	5/1/06	45.90312	-108.36614	Sphaerium striatium	1 valve

Discussion

The current study occurred during an extended drought cycle and thus the 2006 field season documented a high number of dewatered streams. Normal to wet conditions may show very different sampling results. It is clear that many of the streams sampled are of an ephemeral nature and possibly have reaches that are not currently interconnected. Therefore a single sampling event or location may be inadequate to properly establish satisfactory baseline data. Refuges are of a critical nature in maintaining populations of native fish and many crews searched for and identified these areas for survey locations to get a better understanding of fish assemblages.

Sampling in 2006 resulted in more fish captured than the previous three years combined. We are not certain of the factors, but propose that extended seasons in some regions and increased water in streams may have been a factor. In addition, some regions focused on higher order streams connected to rivers for repeat samples. These higher order streams were also sampled at different reaches which definitely resulted in increased species richness numbers.

It would be interesting to compare numbers of nonnative fish captured in previous years. With the current data it would be possible to conduct an analysis to determine if the percentage of nonnative fish are increasing or remaining stable. However, this analysis was beyond the scope of this paper. Green sunfish were clearly the most prevalent and invasive of the nonnatives encountered in any region and clearly impacted native species distribution and abundance. Green sunfish should therefore be restricted from any stocking permits. While prevalent at low levels in many streams they appear to reach a threshold level where they can dominate a system and severely impact native species richness and abundance.

Region 7 had the highest level of nonnatives and the only region with one of the more prevalent nonnative species, the plains killifish. Region 4 was the only region where spottail shiners were documented. In region 5 we documented the introduction and explosion of green sunfish into what is currently an isolated pool on North Willow Creek. This stream was first sampled in 2003 in June and July. In the June sample no green sunfish were recorded and only 9 smaller sized green sunfish were picked up in the July sample. In the 2006 sample 1,597 green sunfish were recorded at the same site. The green sunfish appear to have significantly altered the guild of native fish species. Lake chub, which had been recorded in July of 2003 were not found in 2006, the number of plains minnow were several factors less than when the site was first sampled in 2003 and white sucker numbers went from 66 to only 1 larger adult. Brassy minnow were recorded for the first time in 2006; however they could easily have been overlooked in previous samples due to the lack of color fish exhibit in these very turbid waters.

There is some evidence that the prevalence of nonnatives, albeit at very low levels, may indicate a source population. We hypothesize that the source for many of these nonnatives are impoundments, higher order rivers, irrigation ditches and upper reaches with standing water. It is now possible for mangers to use the data from 2006 (Appendix A) to identify and isolate streams or sites that have a high prevalence of nonnative fish. These sites can then be more carefully monitored in the future to determine expansion of nonnative species. The question at this point exists as to what should be done to address the issue of nonnatives. It would be interesting to further study the level of nonnatives in these streams and try to identify potential source populations. Mangers could then decide what course of action would be appropriate to either eliminate or control the spread of the nonnatives. Future surveys should include the percentage of native versus nonnative species per site and/or stream and compare these results with the baseline data recorded in 2006 (Appendix A).

The average number of fish species recorded per site was 6.35 versus 4.9 last year. This is possibly explained by the order of streams sampled and the repeat samples in Region 5 of highly productive streams. Species richness for fish was in line with previous years efforts. However, this year we were able to identify streams that appear to have nearly intact species assemblages. This is useful for managers to continue monitoring these sites to document their continued integrity over time. These streams give us a good idea of healthy assemblages and densities of native prairie fish when comparing surveys in the region. It would be possible from the habitat data collected to examine stream morphology and order to determine the general characteristics of streams with high densities and richness of native species.

Some of the data collected by Region 5, as well as Region 6 lend to some interesting early findings on temporal variation on some of the streams surveyed. It is clear that species richness and fish abundance varies greatly with the time of year. What is most interesting is that the lowest number of fish and species were recorded in the middle of the summer sampling season. While increased water levels at some sites due to irrigation and plant growth (which inhibits capture efficiency) may be contributing factors to these results, it is clear that there are definite seasonal movements of some species in and out of streams.

Irrigation is also tied into the equation on temporal variation in streams as the water level of streams changes due to injection, runoff or water depletion. Fish from larger bodies of water can enter streams through direct injection or possibly runoff, thus altering species composition and numbers in smaller streams. Increased flows of water during the irrigation season can keep

smaller streams flowing at higher levels than would naturally be the case or even keep streams that would normally be dry or exist with intermittent pools, fully running. While this clearly benefits some species of fish, we do not know what the impacts may be on fish that prefer the slower, lower level of water in the summer.

As we are just beginning to understand some of the individual species movements and use of prairie streams it is important for more temporal sampling to be conducted, especially in the early spring, fall and possibly winter months. The use of prairie streams for spawning by some species has been documented or assumed by the seasonal presence of some larger bodied species of fish as well as the presence of fry or juveniles. This is important data which was previous lacking for some species and which is still lacking for many others.

For example, the presence of catfish fry on Pryor Creek was the first documented spawning of catfish in Region 5. What is even more interesting is that Pryor Creek is a relatively isolated higher order stream due to significant manmade barriers, including one right at the confluence of the stream and the Yellowstone River. Pryor Creek still has a diverse assemblage of native species and is the only stream in Region 5 where channel catfish were documented. Pryor Creek has serious dewatering problems and highlights the importance of refuges on steams where populations of fish can survive and repopulate reaches, even without connections to higher order systems. Higher order streams serve as important sources of refugia for native species, especially during prolonged drought.

Herpetofauna records from 2006 were significantly higher; nearly four times that recorded by teams in 2005. Whether this indicates early season moisture, an increased interest or awareness by the survey teams, or an actual increase of herpetofauna numbers is unclear.

Results indicate that simultaneous herpetological and fish surveys by prairie fish crews are highly productive to the overall knowledge of amphibian abundance and species distributions. They may be less effective for some reptiles of concern, such as the milksnake, greater short-horned lizard, common sagebrush lizard, western hog-nosed snake, eastern racer, western rattlesnake, and gophersnake. These species may require specific search efforts to locate them, although western rattlesnake, gophersnake and eastern racer were frequently recorded by teams on the way to a site either in fields or on roadways. It does appear that combined survey efforts are very useful for determining distributions of gartersnakes and all three native turtle populations in Montana. These surveys even resulted in the discovery of a possible breeding population of red-eared sliders, a highly invasive nonnative turtle, in Region 5.

Spiny softshell and snapping turtle are both species of concern and Tier I Species in Montana that lack data regarding distribution, population status and habitat needs. Snapping turtles are recorded in low but predictable numbers by prairie stream crews. In 2006, they were only documented in Region 5 and 7 and then on only three different streams. From the current data it seems clear that the patchy distribution of snapping turtles would make a more in-depth study difficult at this time without further efforts at defining habitat and focused survey methods. With the site and stream data documented by prairie stream crews we now have a very good place to start.

We also have very good information on spiny softshell distributions, including some high concentration areas in Region 5 on the Musselshell River with 27 turtles already tagged, including four with radio transmitters. Use of these sites to start a more in-depth, habitat use,

population status and even dietary and behavioral studies of spiny softshell turtles would be very feasible, and is needed. The discovery of these congregation areas of spiny softshell on the Musselshell River and the documentation of populations further west than previously recorded, points out an opportune time to establish further programs of study. The current practice of using SWiG funds to piggy back spiny softshell data collection with Yellowstone River game fish studies and Prairie Stream surveys has proved very productive in marking and identifying important areas for spiny softshell turtles. What is needed at this point is a more coordinated effort (i.e. person) to use this information and gather further in-depth natural history parameters on spiny softshell turtles in Montana.

Further recommendations for continuation of Prairie Stream (SWiG) work:

1) Habitat conservation (easements) of streams with intact native species assemblages and refugia.
2) Leases of state lands for native species protection and habitat improvement.
3) Leasing of water rights to increase in-stream flows on systems.
4) Studies of the distribution of non-game fish in larger order streams and rivers (i.e the Yellowstone River, Clark's Fork and Musselshell River).
5) Restoration of urban streams, public awareness of connectivity of streams and rivers.
6) Spiny softshell study on identified populations in eastern Montana.
7) Specific inventory methods to identify snapping turtle distributions.
8) Pryor Creek case study – barrier removal, restoration of a high order prairie stream.
9) Studies to specifically address the impacts of barriers and ditch influence in certain systems and develop management guidelines to reduce their impact.
10) Studies to examine the impacts of nonnatives and possible methods to eliminate or reduce their presence in some systems.

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Literature Cited

Bramblett, Bob. 2003. Fish and habitat sampling protocol for prairie streams. Montana Cooperative Fisheries Research Unit. Bozeman, MT.

Bramblett, B., M.A. Jones-Wuellner, C.S. Guy, and A.V. Zale. 2004. Montana prairie riparian native species study. Montana Cooperative Fishery Research Unit, Montana State University – Bozeman, MT.

Bramblett, B.,T.R. Johnson, A.V. Zale, and D.C. Heggem. 2005. Development and evaluation of a fish assemblage index of biotic integrity for northwestern Great Plains streams. Transactions of the American Fisheries Society 134:624-640.

Dodds, W.K., K. Gido, M. R. Whiles, K. M. Fritz, and W. J. Matthews. 2004. Life on the edge: The ecology of Great Plains prairie streams. BioScience 54:205-216.

McDonald, Ken. 2003. Native prairie fish survey and inventory project performance report. Montana Fish, Wildlife and Parks. Helena, MT.

Reichel, J. and D. Flath. 1995. Identification of Montana's amphibians and reptiles. Montana Fish, Wildlife and Parks. Helena, MT.

Sampson, C.A. 2005. Native prairie fish survey and inventory 2005. Project Performance Report. Montana Fish, Wildlife and Parks. Miles City, MT

Samson, F., and F. Knopf. 1994. Prairie conservation in North America. BioScience 44:418-421.

Tabor, Toby. 2006. Prairie streams summary notes 2006 - Region 4. Montana Fish, Wildlife and Parks. Great Falls, MT.

Tabor, Toby. 2006. Prairie streams survey 2006 - Region 4. Montana Fish, Wildlife and Parks. Great Falls, MT.

Tabor, Toby. 2005. Prairie streams survey 2005 - Region 4. Montana Fish, Wildlife and Parks. Great Falls, MT

Werner, J.K., B.A. Maxell, P. Hendricks, and D.L. Flath. 2004. Amphibians and reptiles of Montana. Mountain Press Publishing Company. Missoula, MT.

Wormgoor, Nicholas. 2006. Prairie stream survey report 2006 – Region 6. Montana, Fish, Wildlife and Parks. Glasgow, MT.

APPENDIX A PRAIRIE STREAMS SUNMMARY 2006 - REGIONS 4,5,6,7

REGION 4

HUC (Drainage)	Site Name/Number/Region	Dates	Lat/Long	Species (Fish and Herp)	#Native	#NonN	Total
10030104	Adobe Creek	10/3/06	47.47623	brassy minnow	95		
	1117195475240		-111.783520	brook stickleback	1		
				fathead minnow	128		
				lake chub	142		
				longnose dace	21		
				mountain sucker	30		
				northern redbelly dace	132		
				hybrid dace	36		
				white sucker	109		
Total Herp Number	0		Total Fish Number		694	0	694
Herp Richness	0		Fish Richness				8
Total Site Richness	8		Native Fish Richness				8
			Percent Native				100
10040204	Akins Coulee	7/13/06	47.08164	fathead minnow	67		
	1083304470822		-108.33226	tiger salamander			1
Total Herp Number	1		Total Fish Number		67	0	67
Herp Richness	1		Fish Richness				1
Total Site Richness	2		Native Fish Richness				1
			Percent Native				100
10030104	Big Coulee	10/3/06	47.52963	fathead minnow	17		
	1118756475163		-111.922580	longnose dace	20		
				mottled sculpin	2		
				mountain whitefish	1		
				northern redbelly dace	2		
				rainbow trout		12	
				white sucker	11		
Total Herp Number	0		Total Fish Number		53	12	65
Herp Richness	0		Fish Richness				7
Total Site Richness	7		Native Fish Richness				6
			Percent Native				81.54
10030203	Big Flat Coulee	6/8/06	48.23539	brook stickleback	46		
	1119503482159		-111.96502	fathead minnow	2		
				lake chub	8		
				longnose dace	5		
				spottail shiner		2	
				white sucker	3		

Total Herp Number	0		Total Fish Number		64	2	66
Herp Richness	0		Fish Richness				6
Total Site Richness	6		Native Fish Richness				5
			Percent Native				96.97

10030202	Big Rock Coulee (above weir)	8/3/06	48.696	brassy minnow	36		
	1123909486830		-112.367880	brook stickleback	1		
				fathead minnow	1165		
				lake chub	6		
				longnose dace	1		
				white sucker	222		

Total Herp Number	0		Total Fish Number		1431	0	1431
Herp Richness	0		Fish Richness				6
Total Site Richness	6		Native Fish Richness				6
			Percent Native				100

10030202	Big Rock Coulee (below weir)	8/3/06	48.696	brassy minnow	32		
	1123909486830		-112.367880	brook stickleback	26		
				fathead minnow	62		
				lake chub	56		
				longnose dace	44		
				longnose sucker	2		
				white sucker	62		

Total Herp Number	0		Total Fish Number		284	0	284
Herp Richness	0		Fish Richness				7
Total Site Richness	7		Native Fish Richness				7
			Percent Native				100

Big Rock Creek Coulee Summary	**8/3/06**	**Total Fish Number**	**1715**	
Sampled 2 times at 2 sites	**8/3/06**	**Fish Richness**	**7**	
		Percent Native	**100**	
		Total Site Richness	**7**	

10030105	Big Willow Creek	5/23/06	47.45025	brassy minnow	4		
	1108782475073		-110.839020	fathead minnow	36		
				lake chub	104		
				longnose dace	3		
				northern redbelly dace	12		
				white sucker	115		

Total Herp Number	0		Total Fish Number		274	0	274
Herp Richness	0		Fish Richness				6
Total Site Richness	6		Native Fish Richness				6

				Percent Native				100

10040101	Birch Creek		9/21/06	47.98105	brassy minnow	3		
		1095765477472		-109.639280	fathead minnow	3		
					lake chub	1		
					longnose dace	23		
					mountain sucker	13		
					white sucker	79		
Total Herp Number		0		Total Fish Number		122	0	122
Herp Richness		0		Fish Richness				6
Total Site Richness		6		Native Fish Richness				6
				Percent Native				100

10030104	Blackfoot Coulee		10/16/06	47.53164	brassy minnow	1		
		1119039475253		-111.903020	fathead minnow	80		
					lake chub	38		
					longnose dace	75		
					longnose sucker	1		
					northern redbelly dace	29		
					hybrid dace	15		
					rainbow trout		2	
					white sucker	1		
Total Herp Number		0		Total Fish Number		240	2	242
Herp Richness		0		Fish Richness				8
Total Site Richness		8		Native Fish Richness				7
				Percent Native				99.17

10030102	Blaine Creek		7/20/06	47.19628	fathead minnow	314		
		1115907472076		-111.59402	lake chub	434		
					longnose dace	593		
					white sucker	93		
Total Herp Number		0		Total Fish Number		1434	0	1434
Herp Richness		0		Fish Richness				4
Total Site Richness		4		Native Fish Richness				4
				Percent Native				100

10030205	Blindhorse Creek		8/2/06	47.69109	brassy minnow	67		
				-112.62211	brook stickleback	21		
					fathead minnow	2		
					lake chub	50		
					longnose dace	2		
					northern redbelly dace	871		

					hybrid dace	325		
					white sucker	41		
					common gartersnake			2
					terrestrial gartersnake			1
Total Herp Number	3			Total Fish Number		1379	0	1379
Herp Richness	2			Fish Richness				7
Total Site Richness	9			Native Fish Richness				7
				Percent Native				100
10030102	Box Elder Creek (above waterfall)	7/27/06	47.56552	longnose dace		19		
	1110916475671		-111.091300	mottled sculpin		3		
Total Herp Number	0			Total Fish Number		22	0	22
Herp Richness	0			Fish Richness				2
Total Site Richness	2			Native Fish Richness				2
				Percent Native				100
10030102	Box Elder Creek (below waterfall)	7/27/06	47.56552	brook stickleback		2		
	1110916475671		-111.091300	brown trout			7	
				fathead minnow		1		
				longnose dace		20		
				longnose sucker		11		
				mottled sculpin		7		
				rainbow trout			2	
				white sucker		118		
Total Herp Number	0			Total Fish Number		159	9	168
Herp Richness	0			Fish Richness				8
Total Site Richness	8			Native Fish Richness				6
				Percent Native				94.64
Box Elder Creek Summary		**7/27/06**		**Total Fish Number**		**190**		
Sampled 2 times at 2 sites		**7/27/06**		**Fish Richness**		**8**		
				Percent Native		**95.26**		
				Total Site Richness		**8**		
10040103	Boyd Creek	5/16/06	47.06964	fathead minnow		5		
	1094262470732		-109.375710	northern redbelly dace		4		
Total Herp Number	0			Total Fish Number		9	0	9
Herp Richness	0			Fish Richness				2
Total Site Richness	2			Native Fish Richness				2
				Percent Native				100

10030205	Brady Canal		6/21/06	47.96352	brook stickleback	66		
		1120691479580		-112.04858	fathead minnow	2		
					white sucker	18		
					yellow perch		2	
Total Herp Number		0		Total Fish Number		86	2	88
Herp Richness		0		Fish Richness				4
Total Site Richness		4		Native Fish Richness				3
				Percent Native				97.73
10050002	Breed Creek		10/18/06	48.87481	brook trout		75	
		1112900489971		-111.24038	lake chub	86		
					longnose dace	79		
					mountain sucker	42		
					white sucker	17		
Total Herp Number		0		Total Fish Number		224	75	299
Herp Richness		0		Fish Richness				5
Total Site Richness		5		Native Fish Richness				4
				Percent Native				74.92
10040103	Buffalo Creek		7/13/06	46.85268	brassy minnow	1		
		1097948468619		-109.763210	fathead minnow	12		
					lake chub	252		
					longnose dace	78		
					mottled sculpin	1		
					northern redbelly dace	131		
					hybrid dace	3		
					white sucker	104		
					northern leopard frog			3
Total Herp Number		3		Total Fish Number		582	0	582
Herp Richness		1		Fish Richness				7
Total Site Richness		8		Native Fish Richness				7
				Percent Native				100
10030203	Bullhead Creek		6/7/06	48.3741	brassy minnow	11		
		1119994483613		-112.142350	brook stickleback	18		
					fathead minnow	37		
					lake chub	55		
					longnose dace	35		
					longnose sucker	2		
					northern redbelly dace	2		
					spottail shiner		1	
					white sucker	7		
Total Herp Number		0		Total Fish Number		167	1	168

Herp Richness	0		Fish Richness				9
Total Site Richness	9		Native Fish Richness				8
			Percent Native				99.41

10030103	Cannonball Coulee	7/19/06	47.36215	fathead minnow	348		
	1114388473739		-111.435870				
Total Herp Number	0		Total Fish Number		348	0	348
Herp Richness	0		Fish Richness				1
Total Site Richness	1		Native Fish Richness				1
			Percent Native				100

10030102	Castner Coulee	7/19/06	47.37121	brassy minnow	5		
	1115063473791		-111.50204	common carp		4	
				fathead minnow	545		
				golden shiner		2	
				lake chub	12		
				longnose dace	16		
				longnose sucker	20		
				hybrid dace	1		
				pumpkinseed		16	
				white sucker	107		
Total Herp Number	0		Total Fish Number		706	22	728
Herp Richness	0		Fish Richness				10
Total Site Richness	10		Native Fish Richness				7
			Percent Native				96.98

10030102	Cherry Coulee	7/20/06	47.21902	tiger salamander			5
	1116482472261		-111.64293				
Total Herp Number	5		Total Fish Number		0	0	0
Herp Richness	1		Fish Richness				0
Total Site Richness	1		Native Fish Richness				0
			Percent Native				0

10030103	Clark Creek	7/18/06	47.19527	longnose dace	26		
	1113907471950		-111.393960	white sucker	285		
Total Herp Number	0		Total Fish Number		311	0	311
Herp Richness	0		Fish Richness				2
Total Site Richness	2		Native Fish Richness				2
			Percent Native				100

10040103	Coyote Creek	9/20/06	47.28695	fathead minnow	20		

		1099729473155		-110.020770	lake chub	16		
					longnose dace	20		
					northern redbelly dace	160		
					hybrid dace	24		
Total Herp Number	0			Total Fish Number		240	0	240
Herp Richness	0			Fish Richness				4
Total Site Richness	4			Native Fish Richness				4
				Percent Native				100
10030104	Cutting Shed Coulee		10/16/06	47.54123	brown trout		6	
		1122975475406		-112.297650	mountain whitefish	1		
					rainbow trout		39	
Total Herp Number	0			Total Fish Number		1	45	46
Herp Richness	0			Fish Richness				3
Total Site Richness	3			Native Fish Richness				1
				Percent Native				2.17
10040102	Davis Creek		9/5/06	47.37366	fathead minnow	123		
		1102362473755		-110.366130	lake chub	43		
					white sucker	142		
Total Herp Number	0			Total Fish Number		308	0	308
Herp Richness	0			Fish Richness				3
Total Site Richness	3			Native Fish Richness				3
				Percent Native				100
10030203	Dry Fork Marias River (site 1)		6/6/06	48.21488	brassy minnow	1		
		1117441483714		-111.944507	brook stickleback	148		
					fathead minnow	16		
					lake chub	59		
					longnose dace	124		
					spottail shiner		12	
					white sucker	36		
Total Herp Number	0			Total Fish Number		384	12	396
Herp Richness	0			Fish Richness				7
Total Site Richness	7			Native Fish Richness				6
				Percent Native				96.97
10030203	Dry Fork Marias River (site 2)		6/6/06	48.2161	brassy minnow	40		
		1117441483714		-111.941830	brook stickleback	124		
					fathead minnow	39		
					lake chub	108		
					longnose dace	19		

					spottail shiner		7	
					white sucker	60		
Total Herp Number	0		Total Fish Number			390	7	397
Herp Richness	0		Fish Richness					7
Total Site Richness	7		Native Fish Richness					6
			Percent Native					98.24

Dry Fork Marias River Summary	**6/6/06**		**Total Fish Number**	**793**
Sampled 2 times at 2 sites	**6/6/06**		**Fish Richness**	**7**
			Percent Native	**97.6**
			Total Site Richness	**7**

10030205	Farmers Coulee	6/21/06	47.98961	brook stickleback	2		
	1120382479905		-112.048840	fathead minnow	4		
				boreal chorus frog			1
Total Herp Number	1		Total Fish Number		6	0	6
Herp Richness	1		Fish Richness				2
Total Site Richness	3		Native Fish Richness				2
			Percent Native				100

10040203	Flatwillow Creek (overflow canal)	5/17/06	46.941	fathead minnow	19		
			-108.2354				
Total Herp Number	0		Total Fish Number		19	0	19
Herp Richness	0		Fish Richness				1
Total Site Richness	1		Native Fish Richness				1
			Percent Native				100

10030205	Gamble Coulee	6/21/06	47.85975	brassy minnow	70		
	1120327478424		-112.09105	brook stickleback	7		
				fathead minnow	60		
				longnose dace	5		
				northern redbelly dace	116		
				hybrid dace	7		
Total Herp Number	0		Total Fish Number		265	0	265
Herp Richness	0		Fish Richness				5
Total Site Richness	5		Native Fish Richness				5
			Percent Native				100

10040103	Hamilton Coulee	9/19/06	47.31783	fathead minnow	56		
	1096634473538		-109.619480	northern redbelly dace	220		
				hybrid dace	4		
				northern leopard frog			13

Total Herp Number	13		Total Fish Number			280	0	280
Herp Richness	1		Fish Richness					2
Total Site Richness	3		Native Fish Richness					2
			Percent Native					100
10030102	Huff Creek	7/20/06	47.18923	fathead minnow		64		
	1115941471957		-111.60574	longnose dace		1		
				northern redbelly dace		7		
Total Herp Number	0		Total Fish Number			72	0	72
Herp Richness	0		Fish Richness					3
Total Site Richness	3		Native Fish Richness					3
			Percent Native					100
10040103	Indian Creek	9/19/06	47.23447	brassy minnow		3		
	1096821472367		-109.683520	brook stickleback		1		
				brown trout			3	
				common carp			1	
				fathead minnow		9		
				lake chub		41		
				longnose dace		53		
				longnose sucker		11		
				northern redbelly dace		7		
				white sucker		64		
				northern leopard frog				16
Total Herp Number	16		Total Fish Number			189	4	193
Herp Richness	1		Fish Richness					10
Total Site Richness	11		Native Fish Richness					8
			Percent Native					97.93
10030102	Keaster Creek	9/13/06	47.6039	brassy minnow		85		
	1105889476141		-110.619840	fathead minnow		190		
				lake chub		329		
				longnose dace		53		
				mountain sucker		45		
				northern redbelly dace		80		
				hybrid dace		19		
				white sucker		379		
Total Herp Number	0		Total Fish Number			1180	0	1180
Herp Richness	0		Fish Richness					7
Total Site Richness	7		Native Fish Richness					7
			Percent Native					100

10030203	Little Flat Coulee		10/17/06	48.27913	brook stickleback	154		
		1118187482616		-111.83998				
Total Herp Number		0		Total Fish Number		154	0	154
Herp Richness		0		Fish Richness				1
Total Site Richness		1		Native Fish Richness				1
				Percent Native				100
10040204	Log Gulch		9/14/06	47.19471	fathead minnow	432		
		1090049471878		-109.00434	northern redbelly dace	8		
					hybrid dace	2		
					northern leopard frog			4
Total Herp Number		4		Total Fish Number		442	0	442
Herp Richness		1		Fish Richness				2
Total Site Richness		3		Native Fish Richness				2
				Percent Native				100
10040204	Maiden Creek		5/16/06	47.15783	boreal chorus frog	1		
		1090472471314		-109.186950				
Total Herp Number		1		Total Fish Number		0	0	0
Herp Richness		1		Fish Richness				0
Total Site Richness		1		Native Fish Richness				0
				Percent Native				0
10030205	Maucki Coulee		6/21/06	48.05628	tiger salamander			2
		1120058480158		-112.134930				
Total Herp Number		2		Total Fish Number		0	0	0
Herp Richness		1		Fish Richness				0
Total Site Richness		1		Native Fish Richness				0
				Percent Native				0
10040201	Muddy Creek		7/11/06	46.35617	brook trout		5	
		1104179464311		-110.43315	mottled sculpin	12		
Total Herp Number		0		Total Fish Number		12	5	17
Herp Richness		0		Fish Richness				2
Total Site Richness		2		Native Fish Richness				1
				Percent Native				70.59
10040103	Mutton Coulee		7/10/06	47.62432	northern leopard frog			150
		1096522476474		-109.76151	tiger salamander			15
Total Herp Number		165		Total Fish Number		0	0	0
Herp Richness		2		Fish Richness				0
Total Site Richness		2		Native Fish Richness				0

				Percent Native				0
10030105	North Willow Creek		5/24/06	47.47885	lake chub	15		
		1108582475185		-110.795240				
Total Herp Number		0		Total Fish Number		15	0	15
Herp Richness		0		Fish Richness				1
Total Site Richness		1		Native Fish Richness				1
				Percent Native				100
10040203	Pike Creek		7/26/06	46.83616	fathead minnow	317		
		1083909468524		-108.51536	boreal chorus frog			4
					northern leopard frog			273
Total Herp Number		277		Total Fish Number		317	0	317
Herp Richness		2		Fish Richness				1
Total Site Richness		3		Native Fish Richness				1
				Percent Native				100
10030203	Pondera Coulee		10/17/06	48.17902	brook stickleback	144		
		1110434482738		-111.75364	fathead minnow	155		
					lake chub	10		
					spottail shiner		3	
					white sucker	14		
Total Herp Number		0		Total Fish Number		323	3	326
Herp Richness		0		Fish Richness				5
Total Site Richness		5		Native Fish Richness				4
				Percent Native				99.08
10040102	Possum Run Coulee		7/10/06	47.41063	brassy minnow	80		
		1099515474106		-109.958110	fathead minnow	8		
					lake chub	2		
					northern redbellly dace	3		
Total Herp Number		0		Total Fish Number		93	0	93
Herp Richness		0		Fish Richness				4
Total Site Richness		4		Native Fish Richness				4
				Percent Native				100
10030105	Red Coulee		5/24/06	47.49795	tiger salamander			6
		1109548475596		-110.963230				
Total Herp Number		6		Total Fish Number		0	0	0
Herp Richness		1		Fish Richness				0
Total Site Richness		1		Native Fish Richness				0
				Percent Native				0

10030203	Ringwald Coulee		6/7/06	48.36974	fathead minnow	5		
		1121246483707		-112.12402	lake chub	31		
					longnose dace	42		
					longnose sucker	1		
					spottail shiner		1	
					white sucker	26		
Total Herp Number	0			Total Fish Number		105	1	106
Herp Richness	0			Fish Richness				6
Total Site Richness	6			Native Fish Richness				5
				Percent Native				99.06
10040103	Rock Creek		7/25/06	46.87786	brook trout		236	
		1097266470574		-109.53057	mottled sculpin	70		
					rainbow trout		17	
					common gartersnake			1
					terrestrial gartersnake			1
Total Herp Number	2			Total Fish Number		70	253	323
Herp Richness	2			Fish Richness				3
Total Site Richness	5			Native Fish Richness				1
				Percent Native				21.67
10040103	Ross Fork Creek		6/1/06	46.96735	brassy minnow	34		
		1097192470725		-109.79946	common carp		3	
					fathead minnow	18		
					lake chub	148		
					longnose dace	289		
					northern redbelly dace	47		
					hybrid dace	8		
					white sucker	45		
Total Herp Number	0			Total Fish Number		589	3	592
Herp Richness	0			Fish Richness				7
Total Site Richness	7			Native Fish Richness				6
				Percent Native				99.49
10030203	School Section Coulee		10/17/06	48.18031	brook stickleback	2		
		1118722481873		-111.87583				
Total Herp Number	0			Total Fish Number		2	0	2
Herp Richness	0			Fish Richness				1
Total Site Richness	1			Native Fish Richness				1
				Percent Native				100

10030201	Sheep Creek (1)		8/1/06	48.19966	fathead minnow	30		
		1124797482019		-112.537170	lake chub	314		
					longnose dace	171		
					white sucker	158		
Total Herp Number		0		Total Fish Number		673	0	673
Herp Richness		0		Fish Richness				4
Total Site Richness		4		Native Fish Richness				4
				Percent Native				100
10030201	Sheep Creek (2)		8/1/06	48.20144	fathead minnow	5		
		1124797482019		-112.513050	lake chub	67		
					longnose dace	129		
					white sucker	69		
					northern leopard frog			12
Total Herp Number		12		Total Fish Number		270	0	270
Herp Richness		1		Fish Richness				4
Total Site Richness		5		Native Fish Richness				4
				Percent Native				100
10030201	Sheep Creek (oxbow pond)		8/1/06	48.20127	fathead minnow	12		
		1124797482019		-112.495000	northern redbelly dace	303		
					hybrid dace	10		
Total Herp Number		0		Total Fish Number		325	0	325
Herp Richness		0		Fish Richness				2
Total Site Richness		2		Native Fish Richness				2
				Percent Native				100
Sheep Creek Summary			**8/1/06**		**Total Fish Number**	**1268**		
Sampled 3 times at 3 sites			**8/1/06**		**Fish Richness**	**5**		
			8/1/06		**Percent Native**	**100**		
					Total Site Richness	**6**		
10040103	Smith Creek		7/10/06	47.36678	fathead minnow	371		
		1097834473527		-109.894160	northern redbelly dace	172		
Total Herp Number		0		Total Fish Number		543	0	543
Herp Richness		0		Fish Richness				2
Total Site Richness		2		Native Fish Richness				2
				Percent Native				100
10040204	South Fork Bear Creek		5/16/06	47.22994	fathead minnow	237		
		1085431472263		-108.553430	green sunfish		13	
					boreal chorus frog			5

Total Herp Number	5		Total Fish Number		237	13	250
Herp Richness	1		Fish Richness				2
Total Site Richness	3		Native Fish Richness				1
			Percent Native				94.8

10030205	Spring Coulee	6/22/06	47.89809	brook stickleback	146		
	1120072478655		-112.055360	fathead minnow	2		
				lake chub	9		
				longnose dace	26		
				mountain sucker	1		
				hybrid dace	1		
				white sucker	8		
Total Herp Number	0		Total Fish Number		193	0	193
Herp Richness	0		Fish Richness				7
Total Site Richness	7		Native Fish Richness				7
			Percent Native				100

10030203	Spring Creek	6/8/06	48.2108	brook stickleback	26		
	1119981482185		-112.046210				
Total Herp Number	0		Total Fish Number		26	0	26
Herp Richness	0		Fish Richness				1
Total Site Richness	1		Native Fish Richness				1
			Percent Native				100

10030203	Unnamed tributary to Dry Fork Marias (site 3)	6/6/06	48.21005	brook stickleback	53		
			-111.941870				
Total Herp Number	0		Total Fish Number		53	0	53
Herp Richness	0		Fish Richness				1
Total Site Richness	1		Native Fish Richness				1
			Percent Native				100

10030203	Unnamed tributary to Dry Fork Marias (site 4)	6/6/06	48.2077	brook stickleback	53		
			-111.928550	fathead minnow	2		
				white sucker	1		
Total Herp Number	0		Total Fish Number		56	0	56
Herp Richness	0		Fish Richness				3
Total Site Richness	3		Native Fish Richness				3
			Percent Native				100

10030105	Williams Creek (upper end)	5/25/06	47.27483	brassy minnow	11		
	1107061472657		-110.686310	fathead minnow	62		
				lake chub	372		

				longnose dace	47		
				longnose sucker	28		
				white sucker	117		
				terrestrial gartersnake			1
Total Herp Number	1		Total Fish Number		637	0	637
Herp Richness	1		Fish Richness				6
Total Site Richness	7		Native Fish Richness				6
			Percent Native				100
10030105	Williams Creek (lower end)	5/25/06	47.26769	brown trout		10	
	1107061472657		-110.704340	mottled sculpin	3		
Total Herp Number	0		Total Fish Number		3	10	13
Herp Richness	0		Fish Richness				2
Total Site Richness	2		Native Fish Richness				1
			Percent Native				23.08
Williams Creek Summary		**5/25/06**		**Total Fish Number**	**650**		
Sampled 2 times at 2 sites		**5/25/06**		**Fish Richness**	**8**		
				Percent Native	**98.46**		
				Total Site Richness	**9**		
10030203	Winginaw Coulee	6/7/06	48.37091	brassy minnow	4		
	1121323483733		-112.14036	brook stickleback	15		
				fathead minnow	5		
				lake chub	29		
				longnose dace	2		
				longnose sucker	1		
				spottail shiner		1	
				white sucker	3		
Total Herp Number	0		Total Fish Number		59	1	60
Herp Richness	0		Fish Richness				8
Total Site Richness	8		Native Fish Richness				7
			Percent Native				98.33
Region 4 Summary				**Total Fish Number**	**17669**		
Sites with fish or herps		**61**		**Total Nonnative Fish**	**482**		
Sites with fish		**56**		**Fish Species**	**20**		
Sites with greater than 25% nonnative fish		**5**	**Mostly Salmonidae**	**Native Fish Species**	**11**		
Sites with equal or greater number nonnative species		**5**		**Percent Native Fish**	**97.28%**		

Sites with 100% native fish species	**36**		**Herp Species**	**5**
Percentage of sites w/fish and only native fish species	**64.29%**			

Stream data = multiple sample sites on a stream		**Stream Data exists for five streams**	
Streams with 100% native fish	**2**	**Streams w/greater than 25% nonnative fish**	**0**
Streams with 99% or greater native fish	**2**		
Big Rock Creek Coulee	**100%**		
Sheep Creek	**100%**		

REGION 5

HUC (Drainage)	Site Name/Number/Region	Dates	Lat/Long	Species (Fish and Herp)	#Native	#NonN	Total
Upper Yellowstone Lake Basin 10070004	Alkali Creek YRPA 36A1_R5	5/8/06	45.80308, -108.473454	longnose dace	50		
				lake chub	571		
				mountain sucker	1		
				longnose sucker	1		
				pumpkinseed		1	
				terrestrial gartersnake			2

Total Herp Number	2	Total Fish Number	623	1	624
Herp Richness	1	Fish Richness			4
Total Site Richness	5	Native Fish Richness			3
		Percent Native			99.84

Upper Yellowstone Lake Basin 10070004	Alkali Creek Mouth 36C1_R5 Too many fish to count. Just species list.	5/11/06	45.80171, -108.47182	common carp		1	
				lake chub	1		
				emerald shiner	1		
				fathead minnow	1		
				western silvery minnow	1		
				shorthead redhorse	1		
				white sucker	1		
				longnose sucker	1		
				stonecat	1		
				black bullhead		1	
				black crappie		1	
				white crappie		1	
				green sunfish		1	
				pumpkinseed		1	
				yellow perch		1	

Total Herp Number	0	Total Fish Number	8	7	15

Herp Richness	0	Fish Richness	15
Total Site Richness	14	Native Fish Richness	8
		Percent Native	NA

Alkali Creek Summary	**5/8/06**		**Total Fish Number**	**637**	
Sampled 3 times at 3 sites	**5/11/06**		**Fish Richness**	**17**	
One with no fish	**5/18/06**		**Percent Native**	**NA**	
			Total Site Richness	**19**	

Upper Yellowstone Pompey's Pillar 10070007	Arrow Creek (mid) 44B1_R5	6/8/06	45.97787, -108.14311	longnose dace	1	
				lake chub	1	
				flathead chub	19	
				emerald shiner	2	
				western silvery minnow	6	
				white sucker	4	

Total Herp Number	0	Total Fish Number	33	0	33
Herp Richness	0	Fish Richness			7
Total Site Richness	7	Native Fish Richness			7
		Percent Native			100

Upper Yellowstone Pompey's Pillar 10070007	Arrow Creek (mid) 44B2_R5	10/25/06	45.97787, -108.14311	longnose dace	58	
				lake chub	468	
				flathead chub	1627	
				emerald shiner	769	
				sand shiner	23	
				fathead minnow	66	
				western silvery minnow	2704	
				river carpsucker	5	
				shorthead redhorse	65	
				white sucker	97	
				mountain sucker	120	
				longnose sucker	182	
				stonecat	22	

Total Herp Number	0	Total Fish Number	6206	0	6206
Herp Richness	0	Fish Richness			13
Total Site Richness	13	Native Fish Richness			13
		Percent Native			100

Upper Yellowstone Pompey's Pillar 10070007	Arrow Creek (upper) 44E1_R5	5/22/06	45.90000, -108.15264	longnose dace	55	
				lake chub	78	
				terrestrial gartersnake		1

Total Herp Number	1	Total Fish Number	133	0	133

Herp Richness	1		Fish Richness				2
Total Site Richness	3		Native Fish Richness				2
			Percent Native				100

Arrow Creek Summary	**8/8/06**		**Total Fish Number**	**6379**	
Sampled 3 times at 3 sites	**10/25/06**		**Fish Richness**	**13**	
One with no fish	**5/22/06**		**Percent Native**	**100**	
			Total Site Richness	**14**	

Upper Musselshell 1004021	Big Coulee Creek 42A1_R5	6/21/06	46.13579, -109.34601	Phoxinus sp.	4		
				hybrid dace	1		
				fathead minnow	2		

Total Herp Number	0		Total Fish Number	7	0	7
Herp Richness	0		Fish Richness			2
Total Site Richness	2		Native Fish Richness			2
			Percent Native			100

Upper Musselshell 1004021	Big Coulee Creek 42C1_R5	6/20/06	46.26336, -108.95276	common carp		15	
				longnose dace	1		
				lake chub	32		
				northern redbelly dace	1		
				fathead minnow	11		
				brassy minnow	66		
				white sucker	2		
				painted turtle			1
				gophersnake			1

Total Herp Number	2		Total Fish Number	113	15	128
Herp Richness	2		Fish Richness			7
Total Site Richness	9		Native Fish Richness			6
			Percent Native			88.28

Upper Musselshell 1004021	Big Coulee Creek 42C2_R5	8/8/06	46.26336, -108.95276	common carp		87	
				longnose dace	9		
				lake chub	1370		
				Phoxinus sp.	71		
				northern red belly dace	22		
				fathead minnow	118		
				brassy minnow	595		
				white sucker	5		
				common gartersnake			1
				northern leopard frog			1

Total Herp Number	2		Total Fish Number	2190	87	2277
Herp Richness	2		Fish Richness			7
Total Site Richness	9		Native Fish Richness			6
			Percent Native			96.18

Upper Musselshell 1004021	Big Coulee Creek 42C3_R5	10/10/06	46.26336, -108.95276	common carp		11	
				lake chub	550		
				Phoxinus sp.	2		
				fathead minnow	46		
				brassy minnow	491		

Total Herp Number	0	Total Fish Number	1089	11	1100
Herp Richness	0	Fish Richness			5
Total Site Richness	5	Native Fish Richness			4
		Percent Native			99

Upper Musselshell 1004021	Big Coulee Creek 42D1_R5	6/20/06	46.28082, -108.93583	longnose dace	1		
				lake chub	1		
				Phoxinus sp.	16		
				fathead minnow	12		
				spiny softshell			14
				northern leopard frog			1

Total Herp Number	15	Total Fish Number	30	0	30
Herp Richness	2	Fish Richness			4
Total Site Richness	6	Native Fish Richness			4
		Percent Native			100

Upper Musselshell 1004021	Big Coulee Creek 42D2_R5	7/24/06	46.28082, -108.93583	common carp		17	
				lake chub	3		
				fathead minnow	5		
				white sucker	7		
				smallmouth bass		2	
				Woodhouse's toad			4
				spiny softshell			1

Total Herp Number	5	Total Fish Number	15	19	34
Herp Richness	2	Fish Richness			5
Total Site Richness	7	Native Fish Richness			3
		Percent Native			44.12

Big Coulee Creek Summary	**6/20/06**	**10/10/2006**	**Total Fish Number**	**3576**
Sampled 7 times at 3 sites	**6/20/06**	**10/10/2006**	**Fish Richness**	**8**

		6/21/06		**Percent Native**	**96.31**		
		7/24/06		**Total Site Richness**	**14**		
		8/8/06					
Upper Yellowstone Lake Basin 10070004	Blue Creek (Golf Course) 64B1_R5	5/17/06	45.71964,-108.51406	longnose dace	9		
				lake chub	148		
				fathead minnow	25		
				white sucker	69		
				green sunfish		2	
Total Herp Number	0			Total Fish Number	251	2	253
Herp Richness	0			Fish Richness			5
Total Site Richness	5			Native Fish Richness			4
				Percent Native			99.21
Upper Yellowstone Lake Basin 10070004	Blue Creek (Golf Course) 64B2_R5	6/29/06	45.71964,-108.51406	longnose dace	27		
				lake chub	151		
				fathead minnow	22		
				white sucker	34		
				longnose sucker	11		
Total Herp Number	0			Total Fish Number	245	0	245
Herp Richness	0			Fish Richness			5
Total Site Richness	5			Native Fish Richness			5
				Percent Native			99.23
Upper Yellowstone Lake Basin 10070004	Blue Creek (Golf Course) 64B3_R5	10/19/06	45.71964,-108.51406	longnose dace	74		
				lake chub	497		
				fathead minnow	85		
				white sucker	95		
				longnose sucker	35		
				mountain sucker	18		
				brook stickleback	6		
				green sunfish		4	
Total Herp Number	0			Total Fish Number	810	4	814
Herp Richness	0			Fish Richness			8
Total Site Richness	8			Native Fish Richness			7
				Percent Native			99.5
Blue Creek Summary		**5/17/06**		**Total Fish Number**	**1312**		
Sampled 3 times at 1 site		**6/29/06**		**Fish Richness**	**8**		
		10/19/06		**Percent Native**	**99.54**		
				Total Site Richness	**8**		

Upper Yellowstone Lake Basin 10070004	Canyon Creek 37D1_R5	5/24/06	45.76775, -108.78777	lake chub	48		
				fathead minnow	1487		
				white sucker	13		
Total Herp Number	0		Total Fish Number		1548	0	1548
Herp Richness	0		Fish Richness				3
Total Site Richness	3		Native Fish Richness				3
			Percent Native				100
Upper Yellowstone Lake Basin 10070004	Canyon Creek 37E1_R5	5/24/06	45.79678, -108.94605	longnose dace	5		
				lake chub	463		
				fathead minnow	1054		
				white sucker	481		
				painted turtle			1
				boreal chorus frog			1
Total Herp Number	2		Total Fish Number		2003	0	2003
Herp Richness	2		Fish Richness				4
Total Site Richness	6		Native Fish Richness				4
			Percent Native				100
Upper Yellowstone Lake Basin 10070004	Canyon Creek 37F1_R5	5/25/06	45.783, -108.783	longnose dace	349		
				lake chub	406		
				flathead chub	164		
				fathead minnow	763		
				shorthead redhorse	48		
				white sucker	290		
				mountain sucker	28		
				longnose sucker	30		
				stonecat	4		
				green sunfish		1	
				boreal chorus frog			1
				great plains toad			2
Total Herp Number	3		Total Fish Number		2082	1	2081
Herp Richness	2		Fish Richness				10
Total Site Richness	12		Native Fish Richness				9
			Percent Native				99.95
Upper Yellowstone Lake Basin 10070004	Canyon Creek 37G1_R5	10/25/06	45.71997, -108.59683	longnose dace	13		
				lake chub	2		
				flathead chub	110		
				emerald shiner	4		
				fathead minnow	4		
				western silvery minnow	3		

					shorthead redhorse	1	
					white sucker	13	
					mountain sucker	10	
					longnose sucker	22	
					rainbow trout		1
					brown trout		1
					mountain whitefish	1	
					northern leopard frog		3

Total Herp Number	3		Total Fish Number	183	2	185
Herp Richness	1		Fish Richness			13
Total Site Richness	14		Native Fish Richness			11
			Percent Native			98.92

Canyon Creek Summary	**5/24/06**		**Total Fish Number**	**5817**	
Sampled 4 times at 4 sites	**5/25/06**		**Fish Richness**	**15**	
	5/24/06		**Percent Native**	**99.95**	
	10/25/06		**Total Site Richness**	**19**	

Upper Musselshell 10040201	Careless Creek 50C_R5	7/24/06	46.34307, -109.21847	common carp		13	
				longnose dace	4		
				lake chub	135		
				flathead chub	2		
				northern redbelly dace	3		
				hybrid dace	17		
				Phoxinus sp.	20		
				fathead minnow	320		
				sand shiner	1		
				brassy minnow	80		
				white sucker	20		
				mountain sucker	29		
				longnose sucker	1		
				stonecat	1		
				painted turtle			3
				northern leopard frog			5

Total Herp Number	8		Total Fish Number	633	13	646
Herp Richness	2		Fish Richness			12
Total Site Richness	15		Native Fish Richness			11
			Percent Native			97.98

Upper Musselshell 10040201	Careless Creek 502C_R5	10/10/06	46.34307, -109.21847	common carp		9	
				longnose dace	121		

				lake chub	368		
				flathead chub	133		
				fathead minnow	634		
				brassy minnow	333		
				shorthead redhorse	10		
				white sucker	282		
				mountain sucker	12		
				longnose sucker	12		
				stonecat	1		
				black bullhead		1	
				northern leopard frog			1

Total Herp Number	1		Total Fish Number	1906	11	1917
Herp Richness	1		Fish Richness			12
Total Site Richness	13		Native Fish Richness			10
			Percent Native			99.43

Careless Creek Summary	**7/24/06**	**Total Fish Number**	**2563**	
Sampled 2 times at 1 site	**10/10/06**	**Fish Richness**	**14**	
		Percent Native	**99.06**	
		Total Site Richness	**16**	

Upper Yellowstone Pompey's Pillar	Crooked Creek 22D1_R5	8/7/06	45.94418, -108.29887	common carp		4	
				longnose dace	6		
				lake chub	17		
				flathead chub	573		
				sand shiner	8		
				fathead minnow	318		
				white sucker	41		
				mountain sucker	2		
				longnose sucker	12		
				stonecat	2		
				northern leopard frog			2

Total Herp Number	2		Total Fish Number	979	4	983
Herp Richness	1		Fish Richness			10
Total Site Richness	11		Native Fish Richness			9
			Percent Native			99.59

Upper Yellowstone Pompey's Pillar	Crooked Creek 22D2_R5	10/24/06	45.94418, -108.29887	longnose dace	20		
				lake chub	3		
				flathead chub	745		
				sand shiner	1		
				fathead minnow	15		

				western silvery minnow	61		
				shorthead redhorse	5		
				white sucker	18		
				mountain sucker	4		
				longnose sucker	68		
				rainbow trout		2	
Total Herp Number	0			Total Fish Number	940	2	942
Herp Richness	0			Fish Richness			11
Total Site Richness	11			Native Fish Richness			10
				Percent Native			99.79
Upper Yellowstone Pompey's Pillar	Crooked Creek 22E1_R5	6/19/06	45.96264, -108.35209	longnose dace	5		
				lake chub	52		
				flathead chub	91		
				sand shiner	33		
				fathead minnow	115		
				shorthead redhorse	9		
				white sucker	16		
				mountain sucker	10		
				longnose sucker	5		
				stonecat	2		
				brook stickleback	1		
				terrestrial gartersnake			1
				Woodhouse's toad			6
Total Herp Number	7			Total Fish Number	339	0	339
Herp Richness	2			Fish Richness			11
Total Site Richness	13			Native Fish Richness			11
				Percent Native			100
Upper Yellowstone Pompey's Pillar	Crooked Creek 22E2_R5	8/2/06	45.96264, -108.35209	common carp		13	
				longnose dace	1		
				lake chub	471		
				flathead chub	4		
				sand shiner	88		
				fathead minnow	115		
				shorthead redhorse	18		
				white sucker	71		
				longnose sucker	19		
				Woodhouse's toad			2
Total Herp Number	2			Total Fish Number	787	13	800
Herp Richness	1			Fish Richness			9
Total Site Richness	10			Native Fish Richness			8
				Percent Native			98.38

Upper Yellowstone Pompey's Pillar	Crooked Creek 22E3_R5	10/24/06	45.96264, -108.35209	common carp		2	
				longnose dace	2		
				lake chub	200		
				flathead chub	2		
				sand shiner	73		
				fathead minnow	63		
				western silvery minnow	4		
				white sucker	14		

Total Herp Number	0	Total Fish Number	358	2	360
Herp Richness	0	Fish Richness			8
Total Site Richness	8	Native Fish Richness			7
		Percent Native			99.44

Crooked Creek Summary	**6/19/06**	**10/24/06**	**Total Fish Number**	**3424**	
Sampled 5 times at 2 sites	**8/2/06**		**Fish Richness**	**14**	
	8/7/06		**Percent Native**	**99.38**	
	10/24/06		**Total Site Richness**	**17**	

Upper Musselshell 10040201	Deadman's Drain 303A1_R5	9/28/06	46.33905, -109.40413	common carp		43	
				longnose dace	12		
				lake chub	20		
				fathead minnow	112		
				brassy minnow	3		
				white sucker	17		
				rainbow trout		55	
				kokanee		13	

Total Herp Number	0	Total Fish Number	164	111	275
Herp Richness	0	Fish Richness			8
Total Site Richness	8	Native Fish Richness			5
		Percent Native			59.64

Upper Musselshell 10040201	Fish Creek 49B1_R5	5/31/06	46.23384, -109.47277	longnose dace	272		
				lake chub	347		
				flathead chub	3		
				fathead minnow	5		
				brassy minnow	13		
				white sucker	165		
				mountain sucker	1		
				northern leopard frog			2

Total Herp Number	2	Total Fish Number	806	0	806
Herp Richness	1	Fish Richness			7
Total Site Richness	8	Native Fish Richness			7

				Percent Native			100
Upper Musselshell 10040201	Fish Creek 49B2_R5	8/8/06	46.23384, -109.47277	longnose dace	204		
				lake chub	128		
				shorthead redhorse	1		
				white sucker	30		
				mountain sucker	1		
				common gartersnake			1
				northern leopard frog			400
				Woodhouse's toad			100
Total Herp Number	501			Total Fish Number	364	0	364
Herp Richness	3			Fish Richness			5
Total Site Richness	8			Native Fish Richness			5
				Percent Native			100
Upper Musselshell 10040201	Fish Creek 49B3_R5	10/17/06	46.23384, -109.47277	longnose dace	127		
				lake chub	264		
				flathead chub	5		
				northern redbelly dace	3		
				fathead minnow	36		
				white sucker	123		
Total Herp Number	0			Total Fish Number	558	0	558
Herp Richness	0			Fish Richness			6
Total Site Richness	6			Native Fish Richness			6
				Percent Native			100
Upper Musselshell 10040201	Fish Creek 49C1_R5	5/30/06	46.28835, -109.22387	common carp		1	
				longnose dace	13		
				lake chub	65		
				flathead chub	11		
				northern redbelly dace	27		
				Phoxinus sp.	25		
				fathead minnow	137		
				brassy minnow	125		
				river carpsucker	1		
				shorthead redhorse	16		
				white sucker	29		
				mountain sucker	7		
				stonecat	2		
				spiny softshell			12
				northern leopard frog			1
				great plains toad			1
Total Herp Number	14			Total Fish Number	458	1	459

Herp Richness	3		Fish Richness					12
Total Site Richness	15		Native Fish Richness					11
			Percent Native					99.78
Upper Musselshell 10040201	Fish Creek 49C2_R5	7/3/06	46.28835, -109.22387	longnose dace	1			
				lake chub	1			
				Phoxinus sp.	22			
				fathead minnow	32			
				brassy minnow	62			
				river carpsucker	5			
				shorthead redhorse	3			
				white sucker	37			
				stonecat	6			
				spiny softshell				2
Total Herp Number	2		Total Fish Number		169	0	169	
Herp Richness	1		Fish Richness					9
Total Site Richness	10		Native Fish Richness					9
			Percent Native					100
Upper Musselshell 10040201	Fish Creek 49C3_R5	10/12/06	46.28835, -109.22387	longnose dace	4			
				lake chub	35			
				flathead chub	45			
				Phoxinus sp.	2			
				fathead minnow	41			
				brassy minnow	1			
				shorthead redhorse	9			
				white sucker	40			
				stonecat	5			
				northern leopard frog				1
Total Herp Number	1		Total Fish Number		182	0	182	
Herp Richness	1		Fish Richness					9
Total Site Richness	10		Native Fish Richness					9
			Percent Native					100
Upper Musselshell 10040201	Fish Creek 49D1_R5	6/13/06	46.21426, -109.93342	longnose dace	380			
				lake chub	5			
				fathead minnow	1			
				white sucker	37			
				brook trout		1		
				terrestrial gartersnake				1
Total Herp Number	1		Total Fish Number		423	1	424	
Herp Richness	1		Fish Richness					5
Total Site Richness	6		Native Fish Richness					4

				Percent Native			99.76
Upper Musselshell 10040201	Fish Creek 49D2_R5	8/23/06	46.21426, -109.93342	longnose dace	92		
				lake chub	1		
				fathead minnow	6		
				white sucker	19		
				brook trout		1	
Total Herp Number	0			Total Fish Number	118	1	119
Herp Richness	0			Fish Richness			5
Total Site Richness	5			Native Fish Richness			4
				Percent Native			99.16
Fish Creek Summary		**5/30/06**	**8/8/06**	**Total Fish Number**	**3356**		
Sampled 8 times at 3 sites		**5/31/06**	**8/23/06**	**Fish Richness**	**13**		
		6/13/06	**10/12/06**	**Percent Native**	**99.91**		
		7/3/06	**10/17/06**	**Total Site Richness**	**19**		
Upper Yellowstone Pompey's Pillar 10070007	Five Mile Creek 60A1_R5	4/20/06	45.84481, -108.423	longnose dace	33		
				flathead chub	28		
				fathead minnow	3		
				white sucker	42		
				mountain sucker	9		
				longnose sucker	9		
				stonecat	3		
				brook stickleback	3		
				northern leopard frog			3
Total Herp Number	3			Total Fish Number	130	0	130
Herp Richness	1			Fish Richness			8
Total Site Richness	9			Native Fish Richness			8
				Percent Native			100
Upper Yellowstone Pompey's Pillar 10070007	Five Mile Creek 60A2_R5	6/26/06	45.84481, -108.423	longnose dace	24		
				flathead chub	36		
				sand shiner	3		
				fathead minnow	4		
				white sucker	1		
				mountain sucker	1		
				spiny softshell			1
				painted turtle			1
				boreal chorus frog			1
Total Herp Number	3			Total Fish Number	69	0	69

Herp Richness	3			Fish Richness				6
Total Site Richness	9			Native Fish Richness				6
				Percent Native				100
Upper Yellowstone	Five Mile Creek 60A3_R5	10/19/06	45.84481, -108.423	longnose dace	2			
Pompey's Pillar				flathead chub	173			
10070007				fathead minnow	6			
				western silvery minnow	1			
				shorthead redhorse	2			
				white sucker	10			
				mountain sucker	13			
				longnose sucker	5			
Total Herp Number	0			Total Fish Number	212	0	212	
Herp Richness	0			Fish Richness				8
Total Site Richness	8			Native Fish Richness				8
				Percent Native				100
Upper Yellowstone	Five Mile Creek 60B1_R5	5/1/06	45.85714, -108.49313	longnose dace	175			
Pompey's Pillar				lake chub	457			
10070007				flathead chub	6			
				fathead minnow	245			
				shorthead redhorse	1			
				white sucker	285			
				mountain sucker	1			
				longnose sucker	20			
				pumpkinseed		1		
Total Herp Number	0			Total Fish Number	1190	1	1191	
Herp Richness	0			Fish Richness				9
Total Site Richness	9			Native Fish Richness				8
				Percent Native				99.92
Upper Yellowstone	Five Mile Creek 60B2_R5	6/28/06	45.85714, -108.49313	longnose dace	32			
Pompey's Pillar				lake chub	140			
10070007				fathead minnow	131			
				shorthead redhorse	30			
				white sucker	71			
				mountain sucker	6			
				longnose sucker	3			
				brook stickleback	1			
Total Herp Number	0			Total Fish Number	414	0	414	
Herp Richness	0			Fish Richness				8
Total Site Richness	8			Native Fish Richness				8
				Percent Native				100

Upper Yellowstone Pompey's Pillar 10070007	Five Mile Creek 60B3_R5	10/16/06	45.85714, -108.49313	longnose dace lake chub flathead chub emerald shiner shorthead redhorse white sucker mountain sucker longnose sucker brook stickleback fathead minnow western silvery minnow stonecat	123 270 2 91 27 115 22 20 1 111 46 1		

Total Herp Number	0	Total Fish Number	829	0	829
Herp Richness	0	Fish Richness			9
Total Site Richness	9	Native Fish Richness			9
		Percent Native			100

Upper Yellowstone Pompey's Pillar 10070007	Five Mile Creek 60C1_R5	5/25/06	45.87908, -108.53107	tiger salamander			36

Total Herp Number	36	Total Fish Number	0	0	0
Herp Richness	1	Fish Richness			0
Total Site Richness	1	Native Fish Richness			0
		Percent Native			0

Five Mile Summary	**4/20/06**	**6/28/2006**	**Total Fish Number**	**2845**
Sampled 7 times at 3 sites	**5/1/06**	**10/16/2006**	**Fish Richness**	**13**
	5/25/06	**10/19/2006**	**Percent Native**	**99.97**
	6/26/06		**Total Site Richness**	**16**

Upper Yellowstone Lake Basin 10070004	Iron Springs /Cove Creek	5/9/06	45.8354, -108.7364	tiger salamander boreal chorus frog			8 2

Total Herp Number	10	Total Fish Number	0	0	0
Herp Richness	2	Fish Richness			0
Total Site Richness	2	Native Fish Richness			0
		Percent Native			0

Upper Musselshell 10040201	Musselshell River (Selkirk) 302A_R5	9/19/06	46.4608, -110.2225	longnose dace lake chub Phoxinus sp.	13 1 1		

				white sucker	95		
				longnose sucker	33		
				brown trout		3	
Total Herp Number	0		Total Fish Number		143	3	146
Herp Richness	0		Fish Richness				6
Total Site Richness	6		Native Fish Richness				5
			Percent Native				97.95
Musselshell	Musselshell R. Barber Bridge 302B_R5	9/28/06	46.3061, -109.38479	common carp		13	
10040201				longnose dace	16		
				lake chub	4		
				fathead minnow	5		
				brassy minnow	3		
				shorthead redhorse	1		
				white sucker	7		
				mountain sucker	1		
Total Herp Number	0		Total Fish Number		37	13	50
Herp Richness	0		Fish Richness				8
Total Site Richness	8		Native Fish Richness				7
			Percent Native				74
Musselshell	Musselshell R. Ryegate Bridge 302C_R5	10/16/06	46.62171, -107.82197	longnose dace	36		
10040201				lake chub	1		
				flathead chub	2		
				shorthead redhorse	1		
				white sucker	1		
Total Herp Number	0		Total Fish Number		41	0	41
Herp Richness	0		Fish Richness				5
Total Site Richness	5		Native Fish Richness				5
			Percent Native				100
Musselshell	Musselshell R. Green Mt. Angus 302D_R5	9/28/06	46.31175, -109.14395	common carp		10	
10040201				longnose dace	15		
				lake chub	16		
				flathead chub	2		
				fathead minnow	1		
				shorthead redhorse	9		
				white sucker	20		
				northern leopard frog			1
Total Herp Number	1		Total Fish Number		63	10	73
Herp Richness	1		Fish Richness				7
Total Site Richness	8		Native Fish Richness				6

			Percent Native				86.3
Musselshell	Musselshell R. Cushman 302E_R5	9/28/06	46.29924, -109.03618	common carp		2	
10040201				longnose dace	27		
				flathead chub	11		
				shorthead redhorse	6		
				white sucker	8		
				mountain sucker	3		
				longnose sucker	1		
				stonecat	1		
Total Herp Number	0		Total Fish Number		57	2	59
Herp Richness	0		Fish Richness				8
Total Site Richness	8		Native Fish Richness				7
			Percent Native				96.61
Musselshell	Musselshell R. Lavina Bridge 302F_R5	9/28/06	46.28647, -108.9375	common carp		1	
10040201				lake chub	1		
				flathead chub	3		
				shorthead redhorse	5		
				mountain sucker	2		
				longnose sucker	1		
				smallmouth bass		6	
Total Herp Number	0		Total Fish Number		12	7	19
Herp Richness	0		Fish Richness				7
Total Site Richness	7		Native Fish Richness				5
			Percent Native				63.16
Musselshell	Musselshell R.Painted Robe 302H_R5	10/5/06	46.28515, -108.84261	common carp		6	
10040201				longnose dace	1		
				flathead chub	29		
				river carpsucker	1		
				shorthead redhorse	3		
				white sucker	11		
				smallmouth bass		25	
				stonecat	1		
Total Herp Number	0		Total Fish Number		46	31	77
Herp Richness	0		Fish Richness				8
Total Site Richness	8		Native Fish Richness				6
			Percent Native				59.74
Musselshell	Musselshell R.Roundup Bridge 302I_R5	10/5/06		common carp		21	
10040201				sand shiner	4		

				river carpsucker	1		
				shorthead redhorse	4		
				white sucker	1		
Total Herp Number	0			Total Fish Number	10	21	31
Herp Richness	0			Fish Richness			5
Total Site Richness	5			Native Fish Richness			4
				Percent Native			32.26
Musselshell	Musselshell R.Gage 302J_R5	10/5/06	46.47285, -108.41187	common carp		4	
10040201				flathead chub	1		
				sand shiner	135		
				white sucker	1		
Total Herp Number	0			Total Fish Number	137	4	141
Herp Richness	0			Fish Richness			4
Total Site Richness	4			Native Fish Richness			3
				Percent Native			97.16
Musselshell	Musselshell R.Delphia 302L_R5	10/27/06	46.5088, -108.21574	common carp		8	
10040201				sand shiner	50		
				river carpsucker	1		
				white sucker	4		
				shorthead redhorse	33		
Total Herp Number	0			Total Fish Number	88	8	96
Herp Richness	0			Fish Richness			5
Total Site Richness	5			Native Fish Richness			4
				Percent Native			91.67
Musselshell	Musselshell R.Musselshell Dam 302M_R5	10/27/06	46.52052, -108.08836	sand shiner	28		
10040201				shorthead redhorse	7		
				smallmouth bass		2	
Total Herp Number	0			Total Fish Number	35	2	37
Herp Richness	0			Fish Richness			3
Total Site Richness	3			Native Fish Richness			2
				Percent Native			94.59
Musselshell	Musselshell R.Melstone Bridge 302N_R5	10/27/06	46.62171, -107.82197	common carp		9	
10040201				longnose dace	3		
				sand shiner	21		
				fathead minnow	7		
				western silvery minnow	102		
				plains minnow	154		
				river carpsucker	4		

					shorthead redhorse	3	
					white sucker	6	
					green sunfish		9
					terrestrial gartersnake		

Total Herp Number	1		Total Fish Number	300	18	318
Herp Richness	1		Fish Richness			10
Total Site Richness	11		Native Fish Richness			8
			Percent Native			94.34

Musselshell Summary		10/27/06	10/5/06	**Total Fish Number**	**1088**
Sampled 12 times at 12 sites		10/27/06	10/5/06	**Fish Richness**	**18**
		10/27/06	9/28/06	**Percent Native**	**89.06**
		10/5/06	9/28/06	**Total Site Richness**	**20**
9/28/06	9/28/06	10/16/06	9/19/06		

Middle Musselshell 10040202	North Willow 40A1_R5	10/27/06	46.68805, -108.01057	common carp		6	
				sand shiner	142		
				fathead minnow	580		
				brassy minnow	16		
				plains minnow	97		
				white sucker	1		
				green sunfish		1599	
				painted turtle			1

Total Herp Number	1		Total Fish Number	836	1605	2441
Herp Richness	1		Fish Richness			7
Total Site Richness	8		Native Fish Richness			5
			Percent Native			34.25

Upper Yellowstone Lake Basin 10070004	Pioneer Park Creek (295_R5)	8/3/06	45.7888, -108.52666	longnose dace	1		
				lake chub	210		
				fathead minnow	14		
				white sucker	34		
				longnose sucker	70		

Total Herp Number	0		Total Fish Number	329	0	329
Herp Richness	0		Fish Richness			5
Total Site Richness	5		Native Fish Richness			5
			Percent Native			100

Pryor 10070008	Pryor Creek 43B1_R5	5/17/06	45.79899, -108.2956	longnose dace	22		
				sand shiner	1		
				fathead minnow	61		
				white sucker	11		

				channel catfish	10		
Total Herp Number	0		Total Fish Number		105	0	105
Herp Richness	0		Fish Richness				5
Total Site Richness	5		Native Fish Richness				5
			Percent Native				100
Pryor 10070008	Pryor Creek 43B2_R5	7/11/06	45.79899, -108.2956	common carp		6	
				longnose dace	7		
				flathead chub	65		
				sand shiner	1		
				fathead minnow	330		
				western silvery minnow	1		
				shorthead redhorse	53		
				white sucker	81		
				longnose sucker	2		
				stonecat	2		
				channel catfish	55		
				black bullhead		9	
				spiny softshell			1
				northern leopard frog			7
Total Herp Number	8		Total Fish Number		597	15	612
Herp Richness	2		Fish Richness				12
Total Site Richness	14		Native Fish Richness				10
			Percent Native				97.55
Pryor 10070008	Pryor Creek 43C1_R5	5/17/06	45.78977, -108.29866	longnose dace	34		
				flathead chub	1		
				shorthead redhorse	6		
				fathead minnow	19		
				white sucker	54		
				mountain sucker	11		
				stonecat	1		
				channel catfish	63		
				black bullhead		11	
Total Herp Number	0		Total Fish Number		189	11	200
Herp Richness	0		Fish Richness				9
Total Site Richness	9		Native Fish Richness				8
			Percent Native				94.5
Pryor 10070008	Pryor Creek 43C2_R5	7/12/06	45.78977, -108.29866	longnose dace	148		
				fathead minnow	392		
				shorthead redhorse	50		
				white sucker	441		

				mountain sucker	8		
				longnose sucker	1		
				stonecat	2		
				channel catfish	4		
				northern leopard frog			3
Total Herp Number	3		Total Fish Number		1046	0	1046
Herp Richness	1		Fish Richness				8
Total Site Richness	9		Native Fish Richness				8
			Percent Native				100
Pryor 10070008	Pryor Creek 43D1_R5	5/8/06	45.88552, -108.29995	common carp		3	
				longnose dace	15		
				flathead chub	8		
				sand shiner	11		
				fathead minnow	44		
				white sucker	7		
				northern leopard frog			25
Total Herp Number	25		Total Fish Number		85	3	88
Herp Richness	1		Fish Richness				6
Total Site Richness	7		Native Fish Richness				5
			Percent Native				96.59
Pryor 10070008	Pryor Creek 43D2_R5	7/12/06	45.88552, -108.29995	common carp		5	
				longnose dace	361		
				flathead chub	33		
				sand shiner	19		
				fathead minnow	465		
				shorthead redhorse	1		
				white sucker	204		
				channel catfish	1		
				northern leopard frog			200
Total Herp Number	200		Total Fish Number		1084	5	1089
Herp Richness	1		Fish Richness				8
Total Site Richness	9		Native Fish Richness				7
			Percent Native				99.54

Pryor Creek Summary	**5/8/06**	**7/11/2006**	**Total Fish Number**	**3140**	
Sampled 6 times at 3 sites	**5/17/06**	**7/12/2006**	**Fish Richness**	**13**	
	5/17/06	**7/12/2006**	**Percent Native**	**98.92**	
			Total Site Richness	**15**	

Upper Yellowstone Pompey's Pillar 10070007	Razor Creek (State) 68A1_R5	4/21/06	45.97096, -10831714	common carp		1	
				longnose dace	127		
				lake chub	156		
				flathead chub	1999		
				sand shiner	192		
				fathead minnow	46		
				shorthead redhorse	3		
				white sucker	263		
				mountain sucker	14		
				longnose sucker	61		
				brook stickleback	54		
				yellow perch		1	

Total Herp Number	0	Total Fish Number	2915	2	2917
Herp Richness	0	Fish Richness			12
Total Site Richness	12	Native Fish Richness			10
		Percent Native			99.93

Upper Yellowstone Pompey's Pillar 10070007	Razor Creek (State) 68A2_R5	7/5/06	45.97096, -10831714	longnose dace	17		
				lake chub	66		
				flathead chub	261		
				sand shiner	56		
				fathead minnow	1		
				shorthead redhorse	1		
				white sucker	94		
				mountain sucker	3		
				longnose sucker	3		
				stonecat	3		
				snapping turtle			1
				terrestrial gartersnake			1

Total Herp Number	2	Total Fish Number	505	0	505
Herp Richness	2	Fish Richness			10
Total Site Richness	12	Native Fish Richness			10
		Percent Native			100

Upper Yellowstone Pompey's Pillar 10070007	Razor Creek (State) 68A3_R5	10/16/06	45.97096, -10831714	common carp		5	
				longnose dace	29		
				lake chub	130		
				flathead chub	1226		
				fathead minnow	95		
				western silvery minnow	427		
				shorthead redhorse	10		
				white sucker	63		

				mountain sucker	9		
				longnose sucker	18		
				emerald shiner	28		
				sand shiner	106		
				green sunfish		1	
				yellow perch		1	
				northern leopard frog			1

Total Herp Number	1		Total Fish Number	2141	7	2148
Herp Richness	1		Fish Richness			12
Total Site Richness	13		Native Fish Richness			9
			Percent Native			99.67

Upper Yellowstone Pompey's Pillar 10070007	Razor Creek (Mouth) 68B1_R5	4/25/06	45.95704, -108.281	longnose dace	62		
				lake chub	18		
				flathead chub	2967		
				sand shiner	132		
				fathead minnow	257		
				western silvery minnow	707		
				shorthead redhorse	1		
				white sucker	364		
				mountain sucker	18		
				longnose sucker	38		
				stonecat	2		
				brook stickleback	7		
				northern leopard frog			4

Total Herp Number	4		Total Fish Number	4573	0	4573
Herp Richness	1		Fish Richness			12
Total Site Richness	13		Native Fish Richness			12
			Percent Native			100

Upper Yellowstone Pompey's Pillar 10070007	Razor Creek (Mouth) 68B2_R5	7/17/06	45.95704, -108.281	common carp		2	
				longnose dace	22		
				flathead chub	775		
				emerald shiner	5		
				sand shiner	11		
				fathead minnow	8		
				white sucker	2		
				mountain sucker	6		
				longnose sucker	3		
				snapping turtle			1
				northern leopard frog			2

Total Herp Number	3		Total Fish Number	832	2	834
Herp Richness	2		Fish Richness			9

Total Site Richness	11			Native Fish Richness				8
				Percent Native				99.76
Upper Yellowstone	Razor Creek (Mouth) 68B3_R5	10/24/06	45.95704, -108.281	lake chub	1			
Pompey's Pillar				flathead chub	1480			
10070007				emerald shiner	2			
				sand shiner	275			
				fathead minnow	1432			
				western silvery minnow	753			
				river carpsucker	2			
				white sucker	94			
				mountain sucker	20			
				longnose sucker	239			
				brook stickleback	1			
				yellow perch		1		
Total Herp Number	0			Total Fish Number	4299	1		4300
Herp Richness	0			Fish Richness				12
Total Site Richness	12			Native Fish Richness				11
				Percent Native				99.98
Upper Yellowstone	Razor Creek (Mid) 68C1_R5	4/19/06	45.993662, -108.35151	longnose dace	17			
Pompey's Pillar				lake chub	229			
10070007				sand shiner	1			
				fathead minnow	162			
				shorthead redhorse	1			
				white sucker	9			
				brook stickleback	44			
Total Herp Number	0			Total Fish Number	463	0		463
Herp Richness	0			Fish Richness				7
Total Site Richness	7			Native Fish Richness				7
				Percent Native				100
Upper Yellowstone	Razor Creek (Mid) 68C2_R5	6/26/06	45.993662, -108.35151	common carp		1		
Pompey's Pillar				longnose dace	165			
10070007				lake chub	93			
				flathead chub	1			
				sand shiner	235			
				fathead minnow	143			
				white sucker	16			
				longnose sucker	50			
				brook stickleback	21			
				pumpkinseed		1		
Total Herp Number	0			Total Fish Number	724	2		726

Herp Richness	0
Total Site Richness	10

Fish Richness	10
Native Fish Richness	8
Percent Native	99.72

Upper Yellowstone	Razor Creek (Mid) 68C3_R5	10/16/06	45.993662, -108.35151	common carp		23	
Pompey's Pillar				longnose dace	113		
10070007				lake chub	147		
				flathead chub	45		
				emerald shiner	2		
				sand shiner	1139		
				fathead minnow	156		
				shorthead redhorse	1		
				white sucker	115		
				mountain sucker	109		
				longnose sucker	16		
				brook stickleback	15		
				green sunfish		14	
				yellow perch		1	

Total Herp Number	1
Herp Richness	1
Total Site Richness	13

Total Fish Number	1858	38	1896
Fish Richness			14
Native Fish Richness			11
Percent Native			98

Upper Yellowstone	Razor Creek (Upper) 68D1_R5	5/22/06	46.02237, -108.36622	common carp		1	
Pompey's Pillar				fathead minnow	1764		
10070007				brook stickleback	1		
				green sunfish		39	
				pumpkinseed		5	
				painted turtle			5
				western hog-nosed snake			1
				tiger salamander			53
				boreal chorus frog			1
				great plains toad			2

Total Herp Number	62
Herp Richness	5
Total Site Richness	10

Total Fish Number	1765	45	1810
Fish Richness			5
Native Fish Richness			2
Percent Native			97.51

Upper Yellowstone	Razor Creek (Upper) 68D2_R5	7/5/06	46.02237, -108.36622	fathead minnow	33		
Pompey's Pillar				brook stickleback	37		
10070007				green sunfish		3	
				painted turtle			1
				tiger salamander			2

				Woodhouse's toad			2
Total Herp Number	5		Total Fish Number		70	3	73
Herp Richness	3		Fish Richness				3
Total Site Richness	6		Native Fish Richness				2
			Percent Native				95.89

Upper Yellowstone	Razor Creek (Turtle Pond) 68E1_R5	5/22/06	46.01343, -108.36589	common carp		1	
Pompey's Pillar	No count - just species list			lake chub	1		
10070007				sand shiner	1		
				fathead minnow	1		
				white sucker	1		
				green sunfish		1	
				pumpkinseed		1	
				painted turtle			1
Total Herp Number	1		Total Fish Number		4	3	7
Herp Richness	1		Fish Richness				7
Total Site Richness	8		Native Fish Richness				4
			Percent Native				NA

Upper Yellowstone	Razor Creek (Turtle Pond) 68E2_R5	7/5/06	46.01343, -108.36589	common carp		1	
Pompey's Pillar	No count - just species list			lake chub	1		
10070007				sand shiner	1		
				fathead minnow	1		
				white sucker	1		
				mountain sucker	1		
				yellow perch		1	
				green sunfish		1	
				pumpkinseed		1	
				Woodhouse's toad			1
Total Herp Number	1		Total Fish Number		5	4	9
Herp Richness	1		Fish Richness				9
Total Site Richness	10		Native Fish Richness				5
			Percent Native				NA

Razor Creek Summary	**4/19/06**	**7/5/2006**	**Total Fish Number**	**20261**	
Sampled 13 times at 5 sites	**4/21/06**	**7/5/2006**	**Fish Richness**	**18**	
	4/25/06	**7/5/2006**	**Percent Native**	**99.47**	
	5/22/06	**7/17/2006**	**Total Site Richness**	**27**	
	5/22/06	**10/16/2006**			
	6/26/06	**10/24/2006**			
		10/16/2006			

Upper Yellowstone Upper Musselshell 10040201	Rock Creek 303_R5	5/31/06	46.18094, -109.38069	boreal chorus frog			3

Total Herp Number	3	Total Fish Number	0	0	0
Herp Richness	1	Fish Richness			0
Total Site Richness	1	Native Fish Richness			0
		Percent Native			0

Clark's Fork Yellowstone 10070006	Silvertip Creek 300B_R5	9/26/06	45.0881, -108.9671	tiger salamander			4
				western rattlesnake			1

Total Herp Number	5	Total Fish Number	0	0	0
Herp Richness	2	Fish Richness			0
Total Site Richness	2	Native Fish Richness			0
		Percent Native			0

Clark's Fork Yellowstone 10070006	Silvertip Creek 299B_R5	9/26/06	45.17457, -108.98546	longnose dace	11		
				lake chub	4		
				white sucker	40		
				mountain sucker	16		
				longnose sucker	22		
				rainbow trout		1	
				mountain whitefish	5		

Total Herp Number	0	Total Fish Number	98	1	99
Herp Richness	0	Fish Richness			7
Total Site Richness	7	Native Fish Richness			6
		Percent Native			98.99

Silvertip Creek Summary	**9/26/06**		**Total Fish Number**	**99**	
Sampled 2 times at 2 sites	**9/26/06**		**Fish Richness**	**7**	
			Percent Native	**98.99**	
			Total Site Richness	**8**	

Upper Musselshell 10040201	Simmons Creek 2B_R5	8/22/06	46.08498, -109.58907	longnose dace	128		
				lake chub	498		
				northern redbelly dace	1		
				Phoxinus sp.	2		
				fathead minnow	1		
				white sucker	90		
				mountain sucker	28		
				brook trout		13	
				terrestrial gartersnake			1

Total Herp Number	1				Total Fish Number	748	13	761
Herp Richness	1				Fish Richness			7
Total Site Richness	8				Native Fish Richness			6
					Percent Native			98.29
Upper Musselshell 10040201	South Fork Big Coulee	292A1_R5	6/14/06	46.18464, -108.99185	longnose dace	48		
					lake chub	91		
					northern redbelly dace	23		
					Phoxinus sp.	113		
					fathead minnow	121		
					white sucker	266		
					mountain sucker	16		
Total Herp Number	0				Total Fish Number	678	0	678
Herp Richness	0				Fish Richness			6
Total Site Richness	6				Native Fish Richness			6
					Percent Native			100
Upper Musselshell 10040201	South Fork Big Coulee	292A2_R5	8/15/06	46.18464, -108.99185	longnose dace	46		
					lake chub	56		
					Phoxinus sp.	165		
					northen red belly dace	7		
					hybrid dace	3		
					fathead minnow	165		
					white sucker	75		
					mountain sucker	14		
					longnose sucker	2		
					painted turtle			1
Total Herp Number	1				Total Fish Number	533	0	533
Herp Richness	1				Fish Richness			7
Total Site Richness	8				Native Fish Richness			7
					Percent Native			100
S. Fork Big Coulee Creek Summary			**6/14/06**		**Total Fish Number**	**1211**		
Sampled 2 times at 1 site			**8/15/06**		**Fish Richness**	**7**		
					Percent Native	**100**		
					Total Site Richness	**8**		
Upper Yellowstone Lake Basin 10070004	Spring Creek Park	296A1_R5	8/3/06	45.77984, -108.55318	common carp		1	
					lake chub	65		
					fathead minnow	16		
					white sucker	2		
					mountain sucker	14		

				longnose sucker	34		
				largemouth bass		1	
				rainbow trout		1	
				terrestrial gartersnake			1
Total Herp Number	1		Total Fish Number		131	3	134
Herp Richness	1		Fish Richness				8
Total Site Richness	9		Native Fish Richness				5
			Percent Native				97.76
Spring Creek Park Summary		**8/3/06**		**Total Fish Number**	**134**		
Sampled 4 times at 4 sites		**8/3/06**		**Fish Richness**	**8**		
Urban subterranean sample for two sites.		**8/3/06**		**Percent Native**	**97.76**		
Open water for two.		**8/3/06**		**Total Site Richness**	**9**		
Clark's Fork Yellowstone 10070006	Spring Creek 291A_R5	5/20/06	45.63957, -108.71584	lake chub	3		
				fathead minnow	165		
				brook stickleback	1		
Total Herp Number	0		Total Fish Number		169	0	169
Herp Richness	0		Fish Richness				3
Total Site Richness	3		Native Fish Richness				3
			Percent Native				100
Spring Creek Summary		**5/20/06**		**Total Fish Number**	**169**		
Sampled 2 times at 2 sites		**5/20/06**		**Fish Richness**	**3**		
One with no fish				**Percent Native**	**100**		
				Total Site Richness	**3**		
Stillwater 10070005	Stillwater R. (Firemans Pt) 300A1_R5	9/25/06	45.62434, -109.28648	longnose dace	42		
				lake chub	6		
				white sucker	54		
				mountain sucker	3		
				longnose sucker	24		
				brook stickleback	12		
				mottled sculpin	23		
				rainbow trout		1	
				brown trout		20	
				terrestrial gartersnake			1
Total Herp Number	1		Total Fish Number		164	21	185
Herp Richness	1		Fish Richness				9
Total Site Richness	10		Native Fish Richness				7

			Percent Native				88.65
Upper Yellowstone 10070002	Sweetgrass Creek (mouth) 298A_R5	9/18/06	45.78607, -109.788658	longnose dace	7		
				lake chub	1		
				emerald shiner	40		
				fathead minnow	1		
				white sucker	10		
				mountain sucker	8		
				longnose sucker	2		
				mottled sculpin	28		
				mountain whitefish	1		
Total Herp Number	0		Total Fish Number		98	0	98
Herp Richness	0		Fish Richness				9
Total Site Richness	9		Native Fish Richness				9
			Percent Native				100
Bighorn Lake	Trail Creek 293A1_R5	7/20/06	45.1022, -108.22231	smallmouth bass		2	
				Salmonidae		3	
10080010				terrestrial gartersnake			2
Total Herp Number	1		Total Fish Number		0	5	5
Herp Richness	1		Fish Richness				2
Total Site Richness	3		Native Fish Richness				0
			Percent Native				0
Bighorn Lake 10080010	Trail Creek 293B1_R5	7/20/06	45.0975, -108.2185	common sagebrush lizard			1
Total Herp Number	1		Total Fish Number		0	0	0
Herp Richness	1		Fish Richness				0
Total Site Richness	1		Native Fish Richness				0
			Percent Native				0
Trail Creek Summary		**7/20/06**	**7/20/06**	**Total Fish Number**	**5**		
Sampled 5 times at 5 sites		**7/20/06**		**Fish Richness**	**2**		
		7/20/06		**Percent Native**	**0**		
		7/20/06		**Total Site Richness**	**4**		
Lower Bighorn 10080015	Tulluck Creek 298A_R5	7/25/06	45.78638, -107.30211	common carp		6	
				fathead minnow	220		
				white sucker	47		
				black bullhead		237	
				green sunfish		261	

				pumpkinseed		10	
				painted turtle			1
Total Herp Number	1		Total Fish Number		267	514	781
Herp Richness	1		Fish Richness				6
Total Site Richness	7		Native Fish Richness				2
			Percent Native				34.19
Lower Bighorn	Tulluck Creek 298B_R5	8/1/06	46.08202, -107.39629	common carp		6	
10080015				sand shiner	25		
				fathead minnow	1647		
				white sucker	9		
				longnose sucker	4		
				black bullhead		95	
				plains killifish		2070	
				green sunfish		125	
				painted turtle			1
				northern leopard frog			5
				Bufo sp.			1
Total Herp Number	7		Total Fish Number		1685	2296	3981
Herp Richness	3		Fish Richness				8
Total Site Richness	11		Native Fish Richness				4
			Percent Native				42.32
Tulluck Creek Summary	**7/25/06**		**Total Fish Number**	**4762**			
Sampled 2 times at 2 sites	**8/1/06**		**Fish Richness**	**9**			
			Percent Native	**40.99**			
			Total Site Richness	**11**			
Upper Yellowstone	Twelve Mile Creek 48A1_R5	5/1/06	45.90312, -108.36614	common carp		1	
Pompey's Pillar				longnose dace	15		
10070007				lake chub	620		
				flathead chub	566		
				sand shiner	30		
				fathead minnow	236		
				western silvery minnow	100		
				white sucker	235		
				mountain sucker	4		
				longnose sucker	82		
				brook stickleback	8		
				pumpkinseed		1	
				yellow perch		1	
				terrestrial gartersnake			3

				plains gartersnake			1
				northern leopard frog			1

Total Herp Number	5			Total Fish Number	1896	3	1899
Herp Richness	3			Fish Richness			13
Total Site Richness	16			Native Fish Richness			10
				Percent Native			99.84

Upper Yellowstone	Twelve Mile Creek 48A2_R5	6/30/06	45.90312, -108.36614	longnose dace	18		
Pompey's Pillar				lake chub	46		
10070007				flathead chub	86		
				sand shiner	3		
				fathead minnow	52		
				white sucker	48		
				longnose sucker	8		
				pumpkinseed		1	
				terrestrial gartersnake			3
				northern leopard frog			4

Total Herp Number	7			Total Fish Number	261	1	262
Herp Richness	2			Fish Richness			7
Total Site Richness	9			Native Fish Richness			6
				Percent Native			99.62

Upper Yellowstone	Twelve Mile Creek 48A3_R5	10/19/06	45.90312, -108.36614	common carp		2	
Pompey's Pillar				longnose dace	3		
10070007				lake chub	250		
				flathead chub	306		
				sand shiner	30		
				fathead minnow	110		
				western silvery minnow	272		
				shorthead redhorse	2		
				white sucker	29		
				mountain sucker	3		
				terrestrial gartersnake			1

Total Herp Number	1			Total Fish Number	1005	2	1007
Herp Richness	1			Fish Richness			10
Total Site Richness	11			Native Fish Richness			9
				Percent Native			99.8

Upper Yellowstone	Twelve Mile upper 48B1_R5	6/19/06	45.92068, -108.4645	lake chub	29		
Pompey's Pillar				fathead minnow	1085		
10070007				brook stickleback	17		
				terrestrial gartersnake			1
				eastern racer			1

				tiger salamander			1
Total Herp Number	3		Total Fish Number		1131	0	1131
Herp Richness	3		Fish Richness				3
Total Site Richness	6		Native Fish Richness				3
			Percent Native				100
Upper Yellowstone Pompey's Pillar 10070007	Twelve Mile upper 48B2_R5	10/3/06	45.92068, -108.4645	lake chub	9		
				fathead minnow	182		
				brook stickleback	18		
Total Herp Number	0		Total Fish Number		209	0	209
Herp Richness	0		Fish Richness				3
Total Site Richness	3		Native Fish Richness				3
			Percent Native				100
Upper Yellowstone Pompey's Pillar 10070007	Twelve Mile Pool 48Z1_R5	5/1/06	45.90312, -108.36614	longnose dace	2		
				lake chub	23		
				flathead chub	270		
				sand shiner	18		
				fathead minnow	45		
				western silvery minnow	8		
				white sucker	241		
				longnose sucker	32		
				yellow perch		1	
				terrestrial gartersnake			1
Total Herp Number	1		Total Fish Number		639	1	640
Herp Richness	1		Fish Richness				9
Total Site Richness	10		Native Fish Richness				8
			Percent Native				99.84
Twelve Mile Creek Summary		**5/1/06**	**10/3/2006**	**Total Fish Number**	**5148**		
Sampled 6 times at 3 sites		**5/1/06**	**10/19/2006**	**Fish Richness**	**14**		
		6/19/06		**Percent Native**	**99.86**		
		6/30/06		**Total Site Richness**	**19**		
Upper Yellowstone Lake Basin 10070004	Valley Creek 301A_R5	9/25/06	45.60833, -108.94315	longnose dace	80		
				emerald shiner	10		
				fathead minnow	8		
				white sucker	66		
				mountain sucker	9		
				longnose sucker	1		
				brook stickleback	2		
				mottled sculpin	1		
				brown trout		2	

				common gartersnake			1
Total Herp Number	1			Total Fish Number	177	2	179
Herp Richness	1			Fish Richness			10
Total Site Richness	11			Native Fish Richness			9
				Percent Native			98.88
Upper Yellowstone Pompeys Pillar	Yellowstone R. Side Channel 294_R5	7/11/06	46.14506, -107.52716	common carp		19	
				longnose dace	3		
				flathead chub	4		
				emerald shiner	276		
				sand shiner	3		
				fathead minnow	8		
				western silvery minnow	421		
				shorthead redhorse	6		
				white sucker	14		
				longnose sucker	3		
				green sunfish		1	
				pumpkinseed		10	
				goldeye	2		
				spiny softshell			1
Total Herp Number	1			Total Fish Number	740	30	770
Herp Richness	1			Fish Richness			13
Total Site Richness	14			Native Fish Richness			10
				Percent Native			96.1
Upper Yellowstone Pompeys Pillar	Yellowstone R. Side Channel 297_R5	8/7/06	45.94613, -108.29599	longnose dace	27		
				lake chub	2		
				flathead chub	276		
				emerald shiner	3		
				sand shiner	6		
				fathead minnow	142		
				western silvery minnow	238		
				river carpsucker	6		
				white sucker	44		
				mountain sucker	20		
				longnose sucker	160		
				Woodhouse's toad			3
Total Herp Number	3			Total Fish Number	924	0	924
Herp Richness	1			Fish Richness			11
Total Site Richness	12			Native Fish Richness			11
				Percent Native			100
Yellowstone Side Channels Summary		**7/11/06**		**Total Fish Number**	**1694**		

Sampled 2 times at 2 sites	8/7/06		Fish Richness	15	
			Percent Native	98.23	
			Total Site Richness	17	

REGION 5 SUMMARY NOTES

Sites with fish or herps	98		Total Fish Number	71376
Sites with fish	93		Total Nonnative Fish	5064
Sites with greater than 25% nonnative fish	10		Fish Species	38
Sites with equal or greater number nonnative species	4		Native Fish Species	24
Sites with 100% native fish species	32		Percent Native Fish	92.91%
Percentage of sites w/fish and only native fish species	34.41%		Herp Species	16

Stream data = multiple sample sites on a stream			Stream data exists for 20 streams.	
Streams with 100% native fish species	4	Streams with greater than 25% nonnative fish		2
Streams with 99% or greater native fish	12			
Arrow Creek	100%	Five Mile		99.97%
Blue Creek	99.55%	Pioneer Park Creek		100%
Canyon Creek	99.93%	Razor Creek		99.47%
Careless Creek	99.06%	S. Fork Big Coulee Crk.		100%
Crooked Creek	99.38%	Spring Creek		100%
Fish Creek	99.90%	Twelve Mile Creek		99.86%

REGION 6

HUC (Drainage)	Site Name/Number/Region	Dates	Lat/Long	Species (Fish and Herp)	#Native	#NonN	Total
Redwater	Antelope Creek_29_R6	5/8/06	47.35838, -105.67172	fathead minnow	76		
				black bullhead		6	
				common carp		2	
				northern leopard frog			1
				boreal chorus frog			1
				boreal chorus frog tadpole			3
				painted turtle			7
				plains gartersnake			2
				Woodhouse's toad			1

				tiger salamander larvae			4
Total Herp Number	19			Total Fish Number	76	8	84
Herp Richness	6			Fish Richness			3
Total Site Richness	9			Native Fish Richness			1
				Percent Native			90.48
Middle Milk	Bean Creek _99_R6	8/2/06	48.43418, -109.19095	fathead minnow	643		
				white sucker	52		
				brassy minnow	62		
				hybrid dace	7		
				northern redbelly dace	19		
				Phoxinus sp.	439		
				pearl dace	7		
				brook stickleback	21		
				painted turtle			1
Total Herp Number	1			Total Fish Number	1250	0	1250
Herp Richness	1			Fish Richness			6
Total Site Richness	7			Native Fish Richness			6
				Percent Native			100
Big Muddy	Beaver Creek_62_R6	6/27/06	48.92426, -104.93623	white sucker	11		
				black bullhead		1	
				northern pike		1	
				plains gartersnake			3
				northern leopard frog tadpole			1
				northern leopard frog			3
Total Herp Number	7			Total Fish Number	11	2	13
Herp Richness	2			Fish Richness			3
Total Site Richness	3			Native Fish Richness			1
				Percent Native			84.62
Battle	Bennet Coulee_124_R6	8/24/06	48.93985, -109.10878	brook stickleback	29		
Total Herp Number	0			Total Fish Number	29	0	29
Herp Richness	0			Fish Richness			1
Total Site Richness	1			Native Fish Richness			1
				Percent Native			100
Big Sandy	Big Sandy Creek_126_R6	8/25/06	48.45165, 109.91880	fathead minnow	7		
				white sucker	2		
				northern leopard frog			7
Total Herp Number	7			Total Fish Number	9	0	9
Herp Richness	1			Fish Richness			2

Total Site Richness	3		Native Fish Richness				2
			Percent Native				100
Middle Milk	Black Coulee_98_R6	8/20/06	48.53758, -109.22253	eastern racer			4
Total Herp Number	4		Total Fish Number		0	0	0
Herp Richness	1		Fish Richness				0
Total Site Richness	1		Native Fish Richness				0
			Percent Native				0
Middle Milk	Box Elder Creek_96_R6	8/1/06	48.4049, -109.09022	tiger salamander larvae	11		
				plains gartersnake	1		
Total Herp Number	12		Total Fish Number		0	0	0
Herp Richness	2		Fish Richness				0
Total Site Richness	2		Native Fish Richness				0
			Percent Native				0
Middle Milk	Bullhook Creek_118_R6	8/23/06	48.51109, -109.49717	northern redbelly dace	957		
				hybrid dace	5		
				fathead minnow	91		
				brook stickleback	20		
Total Herp Number	0		Total Fish Number		1073	0	1073
Herp Richness	0		Fish Richness				3
Total Site Richness	3		Native Fish Richness				3
			Percent Native				100
Beaver in Milk River	Button Butte Coulee_85_R6	7/19/06	48.07523, -107.87983	fathead minnow	313		
				Iowa darter	50		
				northern leopard frog			100
				northern leopard frog tadpole			100
				plains gartersnake			4
Total Herp Number	204		Total Fish Number		363	0	363
Herp Richness	2		Fish Richness				2
Total Site Richness	4		Native Fish Richness				2
			Percent Native				100
Fort Peck Reservoir	Cabin Coulee_52_R6	6/20/06	47.72402, -107.19265	fathead minnow	374		
				northern leopard frog			2
				northern leopard frog tadpole			38
				tiger salamander larvae			103
				plains gartersnake			9
Total Herp Number	152		Total Fish Number		374	0	374
Herp Richness	3		Fish Richness				1

Total Site Richness	4		Native Fish Richness				1
			Percent Native				100
Middle Milk	Clear Creek_108_R6	8/14/06	48.5708, -109.39152	fathead minnow	511		
				longnose dace	498		
				brook stickleback	54		
				white sucker	561		
				lake chub	311		
				hybrid dace	4		
				northern redbelly dace	453		
				pearl dace	233		
				brassy minnow	51		
				Iowa darter	2		
				longnose sucker	1		
				northern leopard frog			34
				plains gartersnake			3
Total Herp Number	37		Total Fish Number		2679	0	2679
Herp Richness	2		Fish Richness				10
Total Site Richness	12		Native Fish Richness				10
			Percent Native				100
Redwater	Cotter Creek_28_R6	5/30/06	47.35375, -105.85396	plains gartersnake			1
				tiger salamander			1
				tiger salamander larvae			1
				northern leopard frog			7
Total Herp Number	10		Total Fish Number		0	0	0
Herp Richness	3		Fish Richness				0
Total Site Richness	3		Native Fish Richness				0
			Percent Native				0
Rock	Cow Coulee_81_R6	7/17/06	48.74245, -106.87933	fathead minnow	34		
				lake chub	1		
				boreal chorus tadpole			1
Total Herp Number	1		Total Fish Number		35	0	35
Herp Richness	1		Fish Richness				2
Total Site Richness	3		Native Fish Richness				2
			Percent Native				100
Redwater	Cow Creek_13_R6	5/16/06	47.71669,-105.63335	fathead minnow	157		
				brook stickleback	34		
				plains gartersnake			4
Total Herp Number	4		Total Fish Number		191	0	191

Herp Richness	1		Fish Richness				2
Total Site Richness	3		Native Fish Richness				2
			Percent Native				100
Lower Milk	Coyote Creek_16_R6	5/18/06	48.05283, -106.73697	tiger salamander			1
				plains gartersnake			1
				northern leopard frog			2
Total Herp Number	4		Total Fish Number		0	0	0
Herp Richness	3		Fish Richness				0
Total Site Richness	3		Native Fish Richness				0
			Percent Native				0
Lower Milk	Crooked Creek_26_R6	5/26/06	48.44089, -106.73573	boreal chorus frog tadpole			5
				boreal chorus frog			2
Total Herp Number	7		Total Fish Number		0	0	0
Herp Richness	1		Fish Richness				0
Total Site Richness	1		Native Fish Richness				0
			Percent Native				0
Lower Milk	Desert Coulee_41_R6	6/5/06	47.84729, -107.09793	fathead minnow	172		
				plains gartersnake			1
				boreal chorus frog tadpole			1
				northern leopard frog tadpole			11
				northern leopard frog			2
Total Herp Number	15		Total Fish Number		172	0	172
Herp Richness	3		Fish Richness				1
Total Site Richness	4		Native Fish Richness				1
			Percent Native				100
Redwater	Dirty Creek_39_R6	6/1/06	47.29537, -105.83208	fathead minnow	5		
				brook stickleback	51		
				brassy minnow	21		
				green sunfish		13	
				common carp		3	
				painted turtle			1
				Woodhouse's toad			1
				plains gartersnake			1
				tiger salamander larvae			14
Total Herp Number	17		Total Fish Number		77	16	93
Herp Richness	4		Fish Richness				5
Total Site Richness	9		Native Fish Richness				3
			Percent Native				82.8

Bullwhacker-Dog	Eagle Creek_109_R6	8/15/06	47.92404, -109.92908	fathead minnow	308		
				longnose dace	56		
				brassy minnow	156		
				white sucker	99		
				lake chub	123		
				stonecat	2		
				northern redbelly dace	36		
				mountain sucker	2		
				plains gartersnake			1
				northern leopard frog			44
				gophersnake			1
				painted turtle			1
Total Herp Number	47		Total Fish Number		782	0	782
Herp Richness	4		Fish Richness				8
Total Site Richness	12		Native Fish Richness				8
			Percent Native				100
Redwater	East Duck Creek_37_R6	5/31/06	47.18781, -10578740	tiger salamander larvae			7
Total Herp Number	7		Total Fish Number		0	0	0
Herp Richness	1		Fish Richness				0
Total Site Richness	1		Native Fish Richness				0
			Percent Native				0
Prairie Elk - Wolf	East Fork Prairie Elk Creek_47_R6	6/8/06	47.6587, -105.83635	fathead minnow	27		
				brassy minnow	28		
				brook stickleback	1		
				tiger salamander larvae			5
				Woodhouse's toad			1
Total Herp Number	6		Total Fish Number		56	0	56
Herp Richness	2		Fish Richness				3
Total Site Richness	5		Native Fish Richness				3
			Percent Native				100
Prairie Elk - Wolf	East Fork Sand Creek_9_R6	5/15/06	47.88691, -105.65852	fathead minnow	16		
				lake chub	33		
				brook stickleback	1070		
				Woodhouse's toad			7
				northern leopard frog			5
				plains gartersnake			4
				painted turtle			1
Total Herp Number	17		Total Fish Number		1119	0	1119

Herp Richness	4		Fish Richness				3
Total Site Richness	7		Native Fish Richness				3
			Percent Native				100
Lower Milk	East Fork Stinky Creek_72_R6	7/11/06	48.66643, -107.40908	fathead minnow	68		
				brook stickleback	32		
				northern redbelly dace	16		
				hybrid dace	8		
				northern leopard frog			175
				northern leopard frog tadpole			4
Total Herp Number	179		Total Fish Number		124	0	124
Herp Richness	1		Fish Richness				3
Total Site Richness	4		Native Fish Richness				3
			Percent Native				100
Middle Milk	Eureka Creek_93_R6	7/26/06	48.53501, -108.49372	tiger salamander larvae			1
				plains gartersnake			1
Total Herp Number	2		Total Fish Number		0	0	0
Herp Richness	2		Fish Richness				0
Total Site Richness	2		Native Fish Richness				0
			Percent Native				0
Big Muddy	Ford Creek_64_R6	6/27/06	48.75596, -104.68226	northern pike		7	
				white sucker	1		
				painted turtle			1
				northern leopard frog			13
				northern leopard frog tadpole			33
				plains gartersnake			14
Total Herp Number	61		Total Fish Number		1	7	8
Herp Richness	3		Fish Richness				2
Total Site Richness	5		Native Fish Richness				1
			Percent Native				0.125
Beaver in Milk River	Fourth Creek_75_R6	7/12/06	48.33214, -107.30397	fathead minnow	96		
				tiger salamander			4
				eastern racer			1
Total Herp Number	5		Total Fish Number		96	0	96
Herp Richness	2		Fish Richness				1
Total Site Richness	3		Native Fish Richness				1
			Percent Native				100
Lower Milk	Hard Pan Creek_42_R6	6/5/06	47.89457, -107.07653	fathead minnow	86		

Total Herp Number	0		Total Fish Number		86	0	86
Herp Richness	0		Fish Richness				1
Total Site Richness	1		Native Fish Richness				1
			Percent Native				100
Fort Peck Reservoir	Hawley Creek_86_R6	7/24/06	47.61045, -108.05143	fathead minnow	5		
Total Herp Number	0		Total Fish Number		5	0	5
Herp Richness	0		Fish Richness				1
Total Site Richness	1		Native Fish Richness				1
			Percent Native				100
Redwater	Hay Creek_49_R6	6/13/06	47.72955, -105.38247	brook stickleback	28		
				northern leopard frog			1
Total Herp Number	1		Total Fish Number		28	0	28
Herp Richness	1		Fish Richness				1
Total Site Richness	2		Native Fish Richness				1
			Percent Native				100
Redwater	Hell Creek_33_R6	5/31/06	47.36249, -105.55369	tiger salamander larvae			16
				Woodhouse's toad			1
				plains gartersnake			1
				boreal chorus frog tadpole			1
Total Herp Number	19		Total Fish Number		0	0	0
Herp Richness	4		Fish Richness				0
Total Site Richness	4		Native Fish Richness				0
			Percent Native				100
Lower Milk	Little Beaver Creek_58_R6	6/22/06	48.09197, -107.03264	fathead minnow	56		
				tiger salamander larvae			4
Total Herp Number	4		Total Fish Number		56	0	56
Herp Richness	1		Fish Richness				1
Total Site Richness	2		Native Fish Richness				1
			Percent Native				100
Middle Milk	Little Boxelder Creek_111_R6	8/16/06	48.52839, -109.54214	fathead minnow	2892		
				white sucker	4154		
				brassy minnow	411		
				longnose dace	358		
				lake chub	360		
				Iowa darter	16		
				northern redbelly dace	176		
				brook stickleback	226		

				mountain sucker	1		
				northern leopard frog tadpole			1
				northern leopard frog			63
Total Herp Number	64		Total Fish Number		8594	0	8594
Herp Richness	1		Fish Richness				9
Total Site Richness	10		Native Fish Richness				9
			Percent Native				100
Lower Milk	Little Brazil Creek_66_R6	6/29/06	48.17397, -106.71518	fathead minnow	1235		
				common carp		69	
				black bullhead		4	
				stonecat	2		
				boreal chorus frog tadpole			5
				plains gartersnake			2
Total Herp Number	7		Total Fish Number		1237	73	1310
Herp Richness	2		Fish Richness				4
Total Site Richness	6		Native Fish Richness				2
			Percent Native				94.43
Prairie Elk - Wolf	Long Branch Creek_10_R6	5/15/06	47.909, -105.74163	tiger salamander larvae			48
Total Herp Number	48		Total Fish Number		0	0	0
Herp Richness	1		Fish Richness				0
Total Site Richness	1		Native Fish Richness				0
			Percent Native				0
Redwater	Long Grass Creek_5_R6	5/11/06	47.933, -105.05856	northern leopard frog			5
				painted turtle			1
Total Herp Number	6		Total Fish Number		0	0	0
Herp Richness	2		Fish Richness				0
Total Site Richness	2		Native Fish Richness				0
			Percent Native				0
Big Muddy	Middle Fork Eagle Creek_61_R6	6/26/06	48.79171, -105.05828	fathead minnow	82		
				brook stickleback	8		
				northern redbelly dace	16		
				brassy minnow	7		
				northern leopard frog tadpole			2
				northern leopard frog			41
				plains gartersnake			7
Total Herp Number	50		Total Fish Number		113	0	113
Herp Richness	2		Fish Richness				4
Total Site Richness	6		Native Fish Richness				4

			Percent Native				100
Porcupine	Middle Fork Porcupine Creek_59_R6	6/26/06	48.66334, -106.4332	fathead minnow	1		
				northern pike		7	
Total Herp Number	0		Total Fish Number		1	7	8
Herp Richness	0		Fish Richness				2
Total Site Richness	2		Native Fish Richness				1
			Percent Native				100
Prairie Elk - Wolf	Middle Fork Prairie Elk Creek_23_R6	5/25/06	47.6618, -105.92516	eastern racer			1
Total Herp Number	1		Total Fish Number		0	0	0
Herp Richness	1		Fish Richness				0
Total Site Richness	1		Native Fish Richness				0
			Percent Native				0
Beaver in Milk River	Moss Coulee_77_R6	7/12/06	48.2233, -107.53352	fathead minnow	565		
				eastern racer shed skin			1
				painted turtle			1
Total Herp Number	1		Total Fish Number		565	0	565
Herp Richness	1		Fish Richness				1
Total Site Richness	2		Native Fish Richness				1
			Percent Native				100
Redwater	Muskrat Creek_6_R6	5/11/06	47.93965, -105.93965	fathead minnow	4,561		
Total Herp Number	0		Total Fish Number		4561	0	4561
Herp Richness	0		Fish Richness				1
Total Site Richness	1		Native Fish Richness				1
			Percent Native				100
Lower Milk	North Fork Lone Tree Creek_56_R6	6/21/06	48.07272, -107.13520	fathead minnow	153		
				lake chub	129		
				common carp		1	
				northern leopard frog			10
				plains gartersnake			6
Total Herp Number	16		Total Fish Number		282	1	283
Herp Richness	2		Fish Richness				3
Total Site Richness	5		Native Fish Richness				2
			Percent Native				99.65
Fort Peck Reservoir	North Fork Mcguire Creek_24_R6	5/25/06	47.62187, -106.04644	fathead minnow	102		
				tiger salamander larvae			358
				Woodhouse's toad			2

				boreal chorus frog tadpole			21
				painted turtle			2
Total Herp Number	383			Total Fish Number	102	0	102
Herp Richness	4			Fish Richness			1
Total Site Richness	5			Native Fish Richness			1
				Percent Native			100
Redwater	Pasture Creek_50_R6	6/13/06	47.64503, -105.16696	brook stickleback	129		
				green sunfish		1	
				northern pike		7	
				tiger salamander larvae			2
				eastern racer			2
Total Herp Number	4			Total Fish Number	129	8	137
Herp Richness	2			Fish Richness			3
Total Site Richness	5			Native Fish Richness			1
				Percent Native			94.16
Peoples	Peoples Creek_100_R6	8/2/06	48.22507, -109.22108	longnose dace	128		
				white sucker	101		
				lake chub	30		
				hybrid dace	4		
				northern redbelly dace	216		
				brook stickleback	38		
				fathead minnow	27		
				brassy minnow	82		
				eastern racer			1
				northern leopard frog			10000+
Total Herp Number	10001			Total Fish Number	626	0	626
Herp Richness	2			Fish Richness			7
Total Site Richness	9			Native Fish Richness			7
				Percent Native			100
Fort Peck Reservoir	Plum Creek_53_R6	6/20/06	47.78174, -107.20557	fathead minnow	194		
				northern leopard frog			2
				northern leopard frog tadpole			38
				tiger salamander larvae			103
				plains gartersnake			9
Total Herp Number	152			Total Fish Number	194	0	194
Herp Richness	3			Fish Richness			1
Total Site Richness	4			Native Fish Richness			1
				Percent Native			100

Prairie Elk - Wolf	Porcupine Creek	5/16/06	47.8071, -105.74163	tiger salamander			22
Total Herp Number	22		Total Fish Number		0	0	0
Herp Richness	1		Fish Richness				0
Total Site Richness	1		Native Fish Richness				0
			Percent Native				0
Redwater	Redwater Gill Net 4.2_50_R6	6/13/06	47.92923, -105.25897	goldeye	13		
				shorthead redhorse	4		
				river carpsucker	9		
				white sucker	3		
				common carp		1	
Total Herp Number	0		Total Fish Number		29	1	30
Herp Richness	0		Fish Richness				5
Total Site Richness	5		Native Fish Richness				4
			Percent Native				96.67
Redwater	Redwater River Crossing gill-net 4.3_70_R6	7/7/06	47.92923, -105.25897	river carpsucker	9		
				common carp		5	
				shorthead redhorse	16		
				channel catfish	1		
				goldeye	8		
				northern pike		2	
				walleye		1	
Total Herp Number	0		Total Fish Number		34	8	42
Herp Richness	0		Fish Richness				4
Total Site Richness	4		Native Fish Richness				2
			Percent Native				75
Redwater	Redwater Gill Net 4.4_106_R6	8/8/06	47.92923, -105.25897	common carp		3	
				river carpsucker	20		
				northern pike		1	
				goldeye	6		
				shorthead redhorse	3		
				walleye		1	
Total Herp Number	0		Total Fish Number		29	5	34
Herp Richness	0		Fish Richness				6
Total Site Richness	6		Native Fish Richness				3
			Percent Native				85.29
			Percent Native				85.29
Redwater	Redwater Gill Net 4.5_131_R6	9/6/06	47.92923, -105.25897	river carpsucker	10		
				saugeye		2	

				northern pike		4	
				goldeye	1		
				green sunfish		1	
				common carp		4	
				shorthead redhorse	2		

Total Herp Number	0		Total Fish Number	13	11	24
Herp Richness	0		Fish Richness			7
Total Site Richness	7		Native Fish Richness			7
			Percent Native			54.17

Redwater	Redwater River Crossing 1 _1_R6	5/8/06	48.05544, -105.21641	shorthead redhorse	69		
				common carp		3	
				walleye		1	
				white sucker	68		
				northern pike		4	
				goldeye	15		
				channel catfish	4		
				emerald shiner	5		
				sand shiner	23		
				fathead minnow	21		
				flathead chub	15		
				western silvery minnow	3		

Total Herp Number	0		Total Fish Number	223	8	231
Herp Richness	0		Fish Richness			10
Total Site Richness	10		Native Fish Richness			8
			Percent Native			96.86

Redwater	Redwater River crossing 1.2_43_R6	6/6/06	48.05544, -105.21641	shorthead redhorse	6		
				sauger	4		
				walleye		2	
				goldeye	4		
				channel catfish	1		
				white sucker	7		
				emerald shiner	19		
				flathead chub	16		
				fathead minnow	112		
				river carpsucker	6		
				sand shiner	88		
				common carp		1	
				plains minnow	1		
				western silvery minnow	3		
				plains gartersnake			1

				Woodhouse's toad			4
				Woodhouse's toad larvae			19
				northern leopard frog			3

Total Herp Number	27			Total Fish Number	267	3	270
Herp Richness	3			Fish Richness			13
Total Site Richness	16			Native Fish Richness			11
				Percent Native			98.85

Redwater	Redwater River crossing 1.3_467_R6	7/6/06	48.05544, -105.21641	common carp		4	
				sand shiner	132		
				fathead minnow	194		
				flathead chub	76		
				goldeye	2		
				white sucker	43		
				river carpsucker	31		
				channel catfish	72		
				longnose dace	2		
				plains minnow	13		
				shorthead redhorse	2		
				plains gartersnake			2
				northern leopard frog			5
				Woodhouse's toad			31
				unidentified tadpoles			5

Total Herp Number	41			Total Fish Number	567	4	571
Herp Richness	2			Fish Richness			12
Total Site Richness	15			Native Fish Richness			11
				Percent Native			99.3

Redwater	Redwater River crossing 1.4_103_R6	8/7/06	48.05544, -105.21641	fathead minnow	901		
				white sucker	317		
				flathead chub	379		
				sand shiner	267		
				longnose dace	26		
				common carp		37	
				channel catfish	14		
				river carpsucker	101		
				brassy minnow	1		
				plains minnow	6		
				shorthead redhorse	4		
				black bullhead		1	
				western silvery minnow	1		
				white crappie		1	
				emerald shiner	2		

				smallmouth buffalo	4		
				bigmouth buffalo	3		
				plains gartersnake			1
				eastern racer			1
				Woodhouse's toad			2
				northern leopard frog			3
Total Herp Number	7			Total Fish Number	2026	39	2065
Herp Richness	4			Fish Richness			17
Total Site Richness	21			Native Fish Richness			14
				Percent Native			98.11
Redwater	Redwater River Crossing 1.5_127_R6	9/5/06	48.05544, -105.21641	fathead minnow	693		
				sand shiner	558		
				flathead chub	222		
				white sucker	110		
				common carp		15	
				channel catfish	5		
				river carpsucker	62		
				bigmouth buffalo	3		
				longnose dace	36		
				emerald shiner	1		
				western silvery minnow	19		
				smallmouth buffalo	2		
				plains minnow	9		
				stonecat	1		
				shorthead redhorse	1		
				northern leopard frog			2
				Woodhouse's toad			1
Total Herp Number	3			Total Fish Number	1722	15	1737
Herp Richness	2			Fish Richness			15
Total Site Richness	17			Native Fish Richness			14
				Percent Native			99.14
Redwater	Redwater River Crossing 2_2_R6	5/9/06	48.05281, -105.21501	shorthead redhorse	1		
				white sucker	11		
				flathead chub	6		
				lake chub	4		
				sand shiner	51		
				longnose dace	5		
				fathead minnow	3		
				common carp		1	
				channel catfish	1		
				northern leopard frog			1
Total Herp Number	1			Total Fish Number	82	1	83

Herp Richness	1			Fish Richness				9
Total Site Richness	10			Native Fish Richness				8
				Percent Native				98.8
Redwater	Redwater River Crossing 2.2_44_R6	6/6/06	48.05168, -105.21580	fathead minnow	3			
				channel catfish	10			
				sand shiner	183			
				flathead chub	74			
				longnose dace	9			
				white sucker	6			
				stonecat	2			
				Woodhouse's toad tadpole				10
				Woodhouse's toad				4
				northern leopard frog				3
Total Herp Number	17			Total Fish Number	287	0		287
Herp Richness	2			Fish Richness				7
Total Site Richness	9			Native Fish Richness				7
				Percent Native				100
Redwater	Redwater River Crossing 2.3_68_R6	7/6/06	48.05168, -105.21580	sand shiner	125			
				white sucker	3			
				flathead chub	50			
				river carpsucker	3			
				channel catfish	2			
				stonecat	1			
				northern leopard frog				3
				Woodhouse's toad				4
Total Herp Number	7			Total Fish Number	184	0		184
Herp Richness	2			Fish Richness				6
Total Site Richness	8			Native Fish Richness				6
				Percent Native				100
Redwater	Redwater River Crossing 2.4_104_R6	8/7/06	48.05168, -105.21580	sand shiner	128			
				Woodhouse's toad				4
				northern leopard frog				9
				eastern racer				1
Total Herp Number	14			Total Fish Number	128	0		128
Herp Richness	3			Fish Richness				1
Total Site Richness	4			Native Fish Richness				1
				Percent Native				100
Redwater	Redwater River Crossing 2.5_128_R6	9/5/06	48.05168, -105.21580	sand shiner	311			
				fathead minnow	2			

				northern leopard frog			1

Total Herp Number	1		Total Fish Number	313	0	313
Herp Richness	1		Fish Richness			2
Total Site Richness	3		Native Fish Richness			2
			Percent Native			100

Redwater	Redwater River Crossing 3_3_R6	5/9/06	47.9283, -105.26184	white sucker	166		
				shorthead redhorse	1		
				emerald shiner	71		
				fathead minnow	344		
				sand shiner	141		
				longnose dace	8		
				brassy minnow	1		
				lake chub	4		
				flathead chub	23		

Total Herp Number	0		Total Fish Number	759	0	759
Herp Richness	0		Fish Richness			9
Total Site Richness	9		Native Fish Richness			9
			Percent Native			100

Redwater	Redwater River Crossing 3.2_45_R6	6/7/06	47.9283, -105.26184	emerald shiner	146		
				white sucker	62		
				fathead minnow	165		
				sand shiner	237		
				longnose dace	16		
				green sunfish		1	
				channel catfish	1		
				river carpsucker	1		
				shorthead redhorse	3		
				flathead chub	10		
				stonecat	2		
				northern pike		1	
				northern leopard frog			6
				painted turtle			1

Total Herp Number	7		Total Fish Number	643	2	645
Herp Richness	2		Fish Richness			12
Total Site Richness	14		Native Fish Richness			10
			Percent Native			99.69

Redwater	Redwater River Crossing 3.3_69_R6	7/7/06	47.9283, -105.26184	sand shiner	666		
				fathead minnow	613		
				flathead chub	115		
				white sucker	474		

				emerald shiner	81		
				lake chub	3		
				stonecat	24		
				shorthead redhorse	15		
				longnose dace	97		
				walleye		1	
				common carp		33	
				channel catfish	2		
				northern leopard frog			13
				northern leopard frog tadpole			1
				Woodhouse's toad			2
				painted turtle			1

Total Herp Number	17		Total Fish Number	2090	34	2124
Herp Richness	3		Fish Richness			12
Total Site Richness	15		Native Fish Richness			10
			Percent Native			98.4

Redwater	Redwater River Crossing 3.4_105_R6	8/8/06	47.9283, -105.26184	longnose dace	316		
				fathead minnow	1557		
				sand shiner	1963		
				white sucker	581		
				common carp		9	
				channel catfish	6		
				stonecat	7		
				river carpsucker	28		
				green sunfish		4	
				flathead chub	222		
				lake chub	3		
				shorthead redhorse	8		
				northern leopard frog			21
				Woodhouse's toad			2

Total Herp Number	23		Total Fish Number	4691	13	4704
Herp Richness	2		Fish Richness			12
Total Site Richness	14		Native Fish Richness			10
			Percent Native			99.72

Redwater	Redwater River Crossing 3.5_129_R6	9/6/06	47.9283, -105.26184	fathead minnow	1231		
				sand shiner	1210		
				white sucker	207		
				channel catfish	3		
				longnose dace	253		
				river carpsucker	7		
				flathead chub	247		

				shorthead redhorse	16		
				stonecat	15		
				green sunfish		38	
				lake chub	5		
				common carp		5	
				northern leopard frog			11
				plains gartersnake			1

Total Herp Number	12		Total Fish Number	3194	43	3237
Herp Richness	2		Fish Richness			12
Total Site Richness	14		Native Fish Richness			10
			Percent Native			98.67

Redwater	Redwater River Crossing 4_4_R6	5/10/06	47.89953, -105.23597	goldeye	1		
				common carp		1	
				sand shiner	83		
				emerald shiner	34		
				green sunfish		1	
				fathead minnow	35		
				white sucker	15		
				shorthead redhorse	2		
				longnose dace	9		

Total Herp Number	0		Total Fish Number	179	2	181
Herp Richness	0		Fish Richness			9
Total Site Richness	9		Native Fish Richness			7
			Percent Native			98.9

Redwater	Redwater River Crossing 4.2_46_R6	6/7/06	47.9305, -105.25241	emerald shiner	75		
				fathead minnow	37		
				sand shiner	52		
				white sucker	6		
				goldeye	1		
				channel catfish	2		
				river carpsucker	1		
				northern leopard frog			9
				northern leopard frog tadpole			10

Total Herp Number	19		Total Fish Number	174	0	174
Herp Richness	1		Fish Richness			7
Total Site Richness	8		Native Fish Richness			7
			Percent Native			100

Redwater	Redwater River Crossing 4.3_70_R6	7/10/06	47.93035, -105.25229	goldeye	3		
				channel catfish	2		
				emerald shiner	97		

				fathead minnow	28		
				sand shiner	107		
				common carp		19	
				white sucker	48		
				longnose dace	6		
				shorthead redhorse	2		
				lake chub	1		
				stonecat	1		
				northern leopard frog			2
				Woodhouse's toad			1

Total Herp Number	3		Total Fish Number	295	19	314
Herp Richness	2		Fish Richness			11
Total Site Richness	13		Native Fish Richness			10
			Percent Native			93.95

Redwater	Redwater River Crossing 4.4_107_R6	8/9/06	47.93035, -105.25229	sand shiner	737		
				fathead minnow	1756		
				emerald shiner	80		
				channel catfish	4		
				green sunfish		26	
				walleye		1	
				white sucker	201		
				northern pike		1	
				shorthead redhorse	19		
				river carpsucker	12		
				longnose dace	7		
				common carp		9	
				goldeye	2		
				lake chub	1		
				plains gartersnake			1
				northern leopard frog			4

Total Herp Number	5		Total Fish Number	2819	37	2856
Herp Richness	2		Fish Richness			14
Total Site Richness	16		Native Fish Richness			10
			Percent Native			98.7

Redwater	Redwater River Crossing 4.5_130_R6	9/6/06	47.93035, -105.25229	sand shiner	570		
				fathead minnow	2535		
				white sucker	120		
				emerald shiner	96		
				green sunfish		150	
				common carp		13	
				river carpsucker	13		

				shorthead redhorse	6		
				channel catfish	3		
				northern leopard frog			2
				painted turtle			2
				plains gartersnake			1
Total Herp Number	5		Total Fish Number		3343	163	3506
Herp Richness	3		Fish Richness				9
Total Site Richness	12		Native Fish Richness				7
			Percent Native				95.35

Redwater River Summary		6/13/06	08/08/06	**Total Fish Number**	**24499**	
Sampled 24 times at 5 sites.		7/7/06	09/06/06	**Fish Richness**	**24**	
		8/8/06	05/10/06	**Percent Native**	**98.97**	
		9/6/06	06/07/06	**Total Site Richness**	**29**	
09/06/06	06/07/06	9/5/06	07/10/06	7/6/2006		
08/07/06	07/07/06	5/9/06	08/09/06	6/6/2006		
9/5/2006	8/7/2006	7/6/06	6/6/2006	5/9/2006	5/8/2006	

Prairie Elk - Wolf	Remuda Creek_14_R6	5/16/06	47.92315, -105.90290	longnose dace	86		
				brassy minnow	19		
				fathead minnow	181		
				white sucker	7		
				lake chub	71		
				northern redbelly dace	2		
				brook stickleback	3		
				black bullhead		1	
				northern leopard frog			22
				gophersnake			1
Total Herp Number	23		Total Fish Number		369	1	370
Herp Richness	2		Fish Richness				8
Total Site Richness	10		Native Fish Richness				7
			Percent Native				99.73

Fort Peck Reservoir	Rough Prong Mcguire Creek_19_R6	5/24/06	47.62139, -106.16909	fathead minnow	3		
				plains minnow	1		
				tiger salamander larvae			5
				plains gartersnake			1
Total Herp Number	6		Total Fish Number		4	0	4
Herp Richness	2		Fish Richness				2
Total Site Richness	4		Native Fish Richness				2
			Percent Native				100

Lower Milk	Sage Hen Creek_17_R6	5/18/06	48.0514, -106.74281	boreal chorus frog			1
				northern leopard frog			1
Total Herp Number	2		Total Fish Number		0	0	0
Herp Richness	2		Fish Richness				0
Total Site Richness	2		Native Fish Richness				0
			Percent Native				0
Fort Peck Reservoir	Sand Arroyo Bay_22_R6	5/25/06	47.81656, -106.21105	Woodhouse's toad			10
				boreal chorus frog			3
				tiger salamander larvae			1
Total Herp Number	14		Total Fish Number		0	0	0
Herp Richness	3		Fish Richness				0
Total Site Richness	3		Native Fish Richness				0
			Percent Native				0
Battle	Sand Coulee_125_R6	8/24/06	48.96143	fathead minnow	646		
				brook stickleback	16		
Total Herp Number	0		Total Fish Number		662	0	662
Herp Richness	0		Fish Richness				2
Total Site Richness	2		Native Fish Richness				2
			Percent Native				100
Middle Milk	Snake Creek_95_R6	8/1/06	48.46393, -109.06213	fathead minnow	2224		
				northern redbelly dace	185		
				hybrid dace	2		
				white sucker	105		
				brassy minnow	582		
				lake chub	1		
				northern leopard frog			5
				plains gartersnake			4
Total Herp Number	9		Total Fish Number		3099	0	3099
Herp Richness	2		Fish Richness				5
Total Site Richness	7		Native Fish Richness				5
			Percent Native				100
Fort Peck Reservoir	Soda Creek_27_R6	5/30/06	47.35, -106.06554	tiger salamander larvae			50
				boreal chorus frog tadpole			55
Total Herp Number	105		Total Fish Number		0	0	0
Herp Richness	2		Fish Richness				0
Total Site Richness	2		Native Fish Richness				0
			Percent Native				0

Lower Milk	South Fork Little Beaver Creek_55_R6	6/21/06	48.09026, -107.10647	fathead minnow	244		
				tiger salamander larvae			1
				northern leopard frog			5
				plains gartersnake			5
Total Herp Number	11		Total Fish Number		244	0	244
Herp Richness	3		Fish Richness				1
Total Site Richness	4		Native Fish Richness				1
			Percent Native				100
Big Muddy	South Fork Whitetail Creek_60_R6	6/26/06	48.85492, -105.16801	brook stickleback	80		
				fathead minnow	7		
				lake chub	1		
				white sucker	1		
				plains gartersnake			1
				painted turtle			1
Total Herp Number	2		Total Fish Number		89	0	89
Herp Richness	2		Fish Richness				4
Total Site Richness	6		Native Fish Richness				4
			Percent Native				100
Middle Milk	Squaw Coulee_112_R6	8/22/06	48.50579, -109.76527	northern leopard frog			16
Total Herp Number	16		Total Fish Number		0	0	0
Herp Richness	1		Fish Richness				0
Total Site Richness	1		Native Fish Richness				0
			Percent Native				0
Beaver in Milk River	Ten Trees Creek_54_R6	6/20/06	47.97469, -107.34745	fathead minnow	42		
				lake chub	2		
				boreal chorus frog tadpole			6
Total Herp Number	6		Total Fish Number		44	0	44
Herp Richness	1		Fish Richness				2
Total Site Richness	3		Native Fish Richness				2
			Percent Native				100
Middle Milk	Thirtymile Creek_92_R6	7/26/06	48.55532, -108.80830	fathead minnow	292		
				brook stickleback	45		
Total Herp Number	0		Total Fish Number		337	0	337
Herp Richness	0		Fish Richness				2
Total Site Richness	2		Native Fish Richness				2
			Percent Native				100
Redwater	Trail Creek_38_R6	6/1/06	47.24041, -105.87455	boreal chorus frog tadpole			1

				tiger salamander			2
				tiger salamander larvae			3
Total Herp Number	6		Total Fish Number		0	0	0
Herp Richness	2		Fish Richness				0
Total Site Richness	2		Native Fish Richness				0
			Percent Native				0
Battle	Unnamed Coulee_123_R6	8/24/06	48.91298, -109.29697	tiger salamander			4
				tiger salamander larvae			2
Total Herp Number	6		Total Fish Number		0	0	0
Herp Richness	1		Fish Richness				0
Total Site Richness	1		Native Fish Richness				0
			Percent Native				0
Big muddy	Unnamed Creek_65_R6	6/28/06	48.37752, -104.18989	brook stickleback	135		
				fathead minnow	24		
				northern leopard frog			2
Total Herp Number	2		Total Fish Number		159	0	159
Herp Richness	1		Fish Richness				2
Total Site Richness	3		Native Fish Richness				2
			Percent Native				100
Prairie Elk - Wolf	West Fork Remuda Creek_15_R6	5/17/06	47.91666, -105.92112	white sucker	22		
				fathead minnow	702		
				brassy minnow	1146		
				plains minnow	14		
				lake chub	92		
				black bullhead		77	
				common carp		1	
				northern redbelly dace	25		
				longnose dace	3		
				brook stickleback	2		
				northern leopard frog			8
				Woodhouse's toad			1
Total Herp Number	9		Total Fish Number		2006	78	2084
Herp Richness	2		Fish Richness				10
Total Site Richness	12		Native Fish Richness				8
			Percent Native				96.26
Rock	West Fork Rock Creek_80_R6	7/17/06	48.9162, -106.91203	fathead minnow	1157		
				brook stickleback	24		
				white sucker	5		

					Iowa darter	28		
					lake chub	53		
					brassy minnow	1		
					northern leopard frog			34
					painted turtle			1
					plains gartersnake			2
Total Herp Number	37			Total Fish Number		1268	0	1268
Herp Richness	3			Fish Richness				6
Total Site Richness	9			Native Fish Richness				6
				Percent Native				100
Fort Peck Reservoir	Winter Creek_90_R6	7/25/06	47.86167, -108.83888	northern leopard frog				12
Total Herp Number	12			Total Fish Number		0	0	0
Herp Richness	1			Fish Richness				0
Total Site Richness	1			Native Fish Richness				0
				Percent Native				0
Battle	Woodpile Coulee_120_R6	8/23/06	48.95532, -109.49717	fathead minnow		1051		
Total Herp Number	0			Total Fish Number		1051	0	1051
Herp Richness	0			Fish Richness				1
Total Site Richness	1			Native Fish Richness				1
				Percent Native				100

Region 6 Summary			
Sites with fish or herps	**90**	**Total Fish Number***	**59128**
Sites with fish	**70**	**Total Nonnative Number**	**609**
Sites with greater than 25% nonnative fish	**3**	**Fish Species**	**30**
Sites with equal or greater number nonnative species	**6**	**Native Fish Species**	**24**
Sites with 100% native fish species	**38**	**Percent Native Fish**	**98.97%**
Percentage of sites w/fish and only native fish species	**54.29%**	**Herp Species**	**8**

Stream data. The only repeat sample sites conducted on one stream were on the Redwater River.

***Unidentified juvenile fish were not included in this Appendix.**

REGION 7

HUC (Drainage)	Site Name/Number/Region	Dates	Lat/Long	Species (Fish and Herp)	#Native	#NonN	Total
Lower Powder	10 Mile Creek_048A_06_R7	7/10/06	46.65109	fathead minnow	33		
10090209			-105.28862	Hybognathus sp.	23		

				plains minnow	5		
				northern leopard frog			36
				northern leopard frog tadpole			19
				Woodhouse's toad			3
Total Herp Number	58		Total Fish Number		61	0	61
Herp Richness	2		Fish Richness				2
Total Site Richness	4		Native Fish Richness				2
			Percent Native				100
Lower Yellowstone	13 Mile Creek_022A_06_R7	7/13/06	47.277	black bullhead		1	
10100004			-104.56069	brook stickleback	23		
				common carp		22	
				creek chub	418		
				fathead minnow	201		
				green sunfish		2	
				longnose dace	129		
				plains killifish		104	
				sand shiner	7		
				shorthead redhorse	15		
				white sucker	196		
				northern leopard frog			40
				northern leopard frog tadpole			8
Total Herp Number	48		Total Fish Number		989	129	1118
Herp Richness	1		Fish Richness				11
Total Site Richness	12		Native Fish Richness				7
			Percent Native				88.38
Lower Yellowstone	13 Mile Creek_042B_06_R7	6/21/06	47.33029	creek chub	21		
10100004			-104.62119	longnose dace	23		
				northern redbelly dace	1		
				northern leopard frog			3
Total Herp Number	3		Total Fish Number		45	0	45
Herp Richness	1		Fish Richness				3
Total Site Richness	4		Native Fish Richness				3
			Percent Native				100
13 Mile Creek Summary		**6/21/06**		**Total Fish Number**	**1163**		
Sampled 3 times at 3 sites		**6/21/06**		**Fish Richness**	**12**		
One with no fish		**7/13/06**		**Percent Native**	**88.83**		
				Total Site Richness	**14**		
Lower Yellowstone	Alkali Creek_011D_06_R7	6/1/06	47.56282	fathead minnow	1		

10100004			-104.22582	Hybognathus sp.	7		
				river carpsucker	4		

Total Herp Number	0	Total Fish Number	12	0	12
Herp Richness	0	Fish Richness			3
Total Site Richness	3	Native Fish Richness			3
		Percent Native			100

Alkali Creek Summary	**6/1/06**	**Total Fish Number**	**12**
Sampled 3 times at 3 sites	**6/1/06**	**Fish Richness**	**3**
Two with no fish	**6/1/06**	**Percent Native**	**100**
		Total Site Richness	**3**

Beaver	Beaver Creek_013A_06_R7	5/30/06	46.84001	black bullhead		4	
10110204			-104.18562	brassy minnow	1		
				creek chub	21		
				fathead minnow	168		
				golden shiner		148	
				green sunfish		10	
				northern pike		2	
				sand shiner	240		
				stonecat	1		
				white sucker	26		
				northern leopard frog			1

Total Herp Number	1	Total Fish Number	457	164	621
Herp Richness	1	Fish Richness			10
Total Site Richness	11	Native Fish Richness			6
		Percent Native			70.1

Big Dry	Big Dry Creek_014A_06_R7	6/6/06	47.08714	tiger salamander larvae			498
10040105			-107.35713	painted turtle			1

Total Herp Number	499	Total Fish Number	0	0	0
Herp Richness	2	Fish Richness			0
Total Site Richness	2	Native Fish Richness			0
		Percent Native			0

Lower Yellowstone	Boxelder Creek_015A_06_R7	6/5/06	47.27433	common carp		2	
10100004			-104.50298	creek chub	47		
				fathead minnow	47		
				flathead chub	4		
				Hybognathus sp.	73		
				plains killifish		3	
				river carpsucker	7		

				sand shiner	142		
				western silvery minnow	2		
				white sucker	6		
				northern leopard frog			2
Total Herp Number	2		Total Fish Number		328	5	333
Herp Richness	1		Fish Richness				9
Total Site Richness	10		Native Fish Richness				7
			Percent Native				98.5
Lower Yellowstone 10100004	Boxelder Creek_015B_06_R7	7/19/06	47.2273 -104.50209	brook stickleback	6		
				common carp		1	
				creek chub	85		
				fathead minnow	638		
				green sunfish		7	
				Hybognathus sp.	19		
				plains killifish		14	
				plains minnow	5		
				sand shiner	165		
				western silvery minnow	1		
				white sucker	28		
				northern leopard frog			3
				Woodhouse's toad			12
Total Herp Number	15		Total Fish Number		947	22	969
Herp Richness	2		Fish Richness				10
Total Site Richness	12		Native Fish Richness				7
			Percent Native				97.73
Lower Yellowstone 10100004	Boxelder Creek_015C_06_R7	7/19/06	57.16788 -104.41866	northern leopard frog			7
				painted turtle			6
Total Herp Number	13		Total Fish Number		0	0	0
Herp Richness	2		Fish Richness				0
Total Site Richness	2		Native Fish Richness				0
			Percent Native				0
Boxelder Creek Summary		**6/5/06**		**Total Fish Number**	**1302**		
Sampled 3 times at 3 sites		**7/19/06**		**Fish Richness**	**12**		
One with no fish		**7/19/06**		**Percent Native**	**97.93**		
				Total Site Richness	**15**		
Lower Yellowstone 10100004	Cabin Creek_016A_06_R7	6/7/06	46.77163 -104.78357	channel catfish	13		
				creek chub	5		
				fathead minnow	28		

					flathead chub	4		
					Hybognathus sp.	3		
					longnose dace	21		
					plains minnow	1		
					sand shiner	9		
					white sucker	19		
					northern leopard frog			24

Total Herp Number	24		Total Fish Number	103	0	103
Herp Richness	1		Fish Richness			8
Total Site Richness	9		Native Fish Richness			8
			Percent Native			100

Lower Yellowstone	Cabin Creek_016B_06_R7	6/7/06	46.70254		channel catfish	13		
10100004			-104.68551		fathead minnow	45		
					flathead chub	2		
					Hybognathus sp.	1		
					plains killifish		2	
					longnose dace	4		
					plains minnow	1		
					white sucker	8		
					northern leopard frog			20
					Woodhouse's toad			1

Total Herp Number	21		Total Fish Number	74	2	76
Herp Richness	2		Fish Richness			7
Total Site Richness	9		Native Fish Richness			6
			Percent Native			97.37

Lower Yellowstone	Cabin Creek_016C_06_R7	6/7/06	46.66808		creek chub	1		
10100004			-104.68551		fathead minnow	53		
					flathead chub	4		
					Hybognathus sp.	42		
					longnose dace	6		
					plains minnow	2		
					white sucker	1		
					plains gartersnake			1

Total Herp Number	1		Total Fish Number	109	0	109
Herp Richness	1		Fish Richness			6
Total Site Richness	7		Native Fish Richness			6
			Percent Native			100

Cabin Creek Summary	**6/7/06**	**Total Fish Number**	**288**	
Sampled 3 times at 3 sites	**6/7/06**	**Fish Richness**	**9**	

		6/7/06			Percent Native	99.31		
					Total Site Richness	12		
Lower Musselshell 10040205	Calf Creek_017A_06_R7	7/6/2006	47.19083 -107.92321	black bullhead		18		
				brassy minnow	14			
				fathead minnow	263			
				green sunfish		52		
				lake chub	1			
				white sucker	7			
Total Herp Number	0			Total Fish Number	285	70	355	
Herp Richness	0			Fish Richness			6	
Total Site Richness	6			Native Fish Richness			4	
				Percent Native			80.28	
Lower Musselshell 10040205	Calf Creek_017B_06_R7	7/6/2006	47.19083 -107.92321	common carp		1		
Total Herp Number	0			Total Fish Number	0	1	1	
Herp Richness	0			Fish Richness			1	
Total Site Richness	7			Native Fish Richness			0	
				Percent Native			0	
Calf Creek Summary		**7/6/06**		**Total Fish Number**	**356**			
Sampled 3 times at 3 sites		**7/6/06**		**Fish Richness**	**7**			
One with no fish				**Percent Native**	**80.05**			
				Total Site Richness	**7**			
Lower Yellowstone 10100004	Cedar Creek_018A_06_R7	6/20/06	46.91383 -104.73013	creek chub	4			
				fathead minnow	66			
				Hybognathus sp.	302			
				plains killifish		4		
				river carpsucker	5			
				sand shiner	30			
				northern leopard frog			20	
Total Herp Number	20			Total Fish Number	407	4	411	
Herp Richness	1			Fish Richness			6	
Total Site Richness	7			Native Fish Richness			5	
				Percent Native			84.57	
Cedar Creek Summary		**6/20/06**						
Sampled 3 times at 3 sites		**8/8/06**		**Total Fish Number**	**411**			
Two with no fish		**8/8/06**		**Fish Richness**	**6**			
				Percent Native	**84.57**			
				Total Site Richness	**7**			

Lower Yellowstone 10100004	Clear Creek_019A_06_R7	6/22/06	46.96004 -104.80143	channel catfish	6		
				common carp		1	
				creek chub	2		
				emerald shiner	8		
				flathead chub	6		
				goldeye	1		
				river carpsucker	1		
				sand shiner	47		
				shorthead redhorse	17		
				western silvery minnow	63		
				northern leopard frog			4
				northern leopard frog tadpole			2

Total Herp Number	6	Total Fish Number	151	1	152
Herp Richness	1	Fish Richness			11
Total Site Richness	12	Native Fish Richness			10
		Percent Native			99.5

Lower Yellowstone 10100004	Clear Creek_019B_06_R7	6/5/06	47.01334 -104.95284	creek chub	52		
				fathead minnow	15		
				northern redbelly dace	4		
				brook stickleback	2		
				white sucker	117		
				northern leopard frog			30

Total Herp Number	30	Total Fish Number	190	0	190
Herp Richness	1	Fish Richness			5
Total Site Richness	6	Native Fish Richness			5
		Percent Native			100

Lower Yellowstone 10100004	Clear Creek_019D_06_R7	7/10/06	47.16588 -105.2661	plains gartersnake			2
				northern leopard frog			10

Total Herp Number	12	Total Fish Number	0		0
Herp Richness	2	Fish Richness			0
Total Site Richness	2	Native Fish Richness			0
		Percent Native			0

Clear Creek Summary	**6/5/06**			
Sampled 4 times at 4 sites	**6/22/06**	**Total Fish Number**	**342**	
Two with no fish	**7/10/06**	**Fish Richness**	**15**	
	7/10/06	**Percent Native**	**99.74**	
		Total Site Richness	**17**	

Lower Yellowstone 10100004	Cottonwood Creek_55A_06_R7	6/19/06	46.90395 -105.20824	fathead minnow	9		
				plains killifish		1	
				plains minnow	8		
				sand shiner	1		
				northern leopard frog			2

Total Herp Number	2	Total Fish Number	18	1	19
Herp Richness	1	Fish Richness			4
Total Site Richness	5	Native Fish Richness			3
		Percent Native			94.74

Lower Yellowstone 10100004	Cottonwood Creek_21A_06_R7	7/19/06	47.26223 -10436429	northern leopard frog			10
				Woodhouse's toad			1

Total Herp Number	11	Total Fish Number	0	0	0
Herp Richness	2	Fish Richness			0
Total Site Richness	2	Native Fish Richness			0
		Percent Native			0

Cottwood Creek Summary	**6/19/06**			
Sampled 2 times at 2 sites	**7/19/06**	**Total Fish Number**	**19**	
One with no fish		**Fish Richness**	**4**	
		Percent Native	**94.74**	
		Total Site Richness	**7**	

Upper Tongue 10090101	Deer Creek_001A_06RE_R7	5/25/06	45.05529 -106.70296	Woodhouse's toad			2

Total Herp Number	2	Total Fish Number	0	0	0
Herp Richness	1	Fish Richness			0
Total Site Richness	1	Native Fish Richness			0
		Percent Native			0

Lower Yellowstone 10100004	First Hay Creek_026B_06_R7	6/12/06	47.80192 -104.06992	channel catfish	2		
				emerald shiner	2		
				fathead minnow	1		
				Hybognathus sp.	27		
				longnose dace	2		
				sand shiner	2		

Total Herp Number	0	Total Fish Number	36	0	36
Herp Richness	0	Fish Richness			6
Total Site Richness	6	Native Fish Richness			6
		Percent Native			100

First Hay Creek Summary	6/12/06							
Sampled 2 times at 2 sites	6/12/06			Total Fish Number	36			
One with no fish				Fish Richness	6			
				Percent Native	100			
				Total Site Richness	6			

Fort Peck Reservoir 10040104	Flat Creek_045A_06-R7	7/12/06	47.5135 -106.36614	fathead minnow	265		
				flathead chub	19		
				Hybognathus sp.	263		
				lake chub	1		
				plains minnow	3		
				western silvery minnow	2		
				northern leopard frog			4
				Woodhouse's toad			7
				northern leopard frog tadpole			27

Total Herp Number	38	Total Fish Number	553	0	553
Herp Richness	3	Fish Richness			5
Total Site Richness	8	Native Fish Richness			5
		Percent Native			100

Lower Yellowstone-Sunday 10100001	Hanging Woman Creek_007A 06_R7	5/17/06	45.22753 -106.49899	black bullhead		2	
				creek chub	1		
				fathead minnow	23		
				green sunfish		101	
				white sucker	4		
				Woodhouse's toad			2
				gophersnake			1

Total Herp Number	3	Total Fish Number	28	103	131
Herp Richness	2	Fish Richness			5
Total Site Richness	7	Native Fish Richness			3
		Percent Native			21.37

Upper Tongue 10090101	Hanging Woman Creek_007B 06_R7	8/3/06	45.22792 -106.49961	black bullhead		2	
				fathead minnow	11		
				green sunfish		2	
				painted turtle			1
				northern leopard frog			24

Total Herp Number	25	Total Fish Number	11	4	15
Herp Richness	2	Fish Richness			3
Total Site Richness	5	Native Fish Richness			1
		Percent Native			73.33

Hanging Woman Creek Summary	5/17/06						
Sampled 2 times at 2 sites	8/3/06		Total Fish Number	146			
			Fish Richness	5			
			Percent Native	26.71			
			Total Site Richness	9			

Lower Tongue	Johnson Creek_051A-06_R7	6/29/06	46.22699	tiger salmander larvae			9
10090102			-105.54591	western rattlesnake			1
Total Herp Number	10		Total Fish Number		0	0	0
Herp Richness	2		Fish Richness				0
Total Site Richness	2		Native Fish Richness				0
			Percent Native				0
Little Dry	Little Dry Creek_029A_06-R7	6/27/06	47.06277	black bullhead		1	
10100004			-106.42033	brook stickleback	1		
				common carp		1	
				creek chub	8		
				fathead minnow	235		
				Hybognathus sp.	484		
				longnose dace	8		
				plains minnow		2	
				sand shiner	135		
				white sucker	46		
				northern leopard frog			12
Total Herp Number	12		Total Fish Number		917	4	921
Herp Richness	1		Fish Richness				9
Total Site Richness	10		Native Fish Richness				6
			Percent Native				99.57
Little Powder	Little Powder River_009A_06_R7	5/16/06	45.10466	black bullhead		2	
10090208			-105.33071	channel catfish	5		
				common carp		3	
				fathead minnow	139		
				green sunfish		8	
				longnose dace	5		
				sand shiner	625		
				shorthead redhorse	4		
				stonecat	1		
				white sucker	21		
				northern leopard frog			2
Total Herp Number	2		Total Fish Number		800	13	813

Herp Richness	1
Total Site Richness	11

Fish Richness	10
Native Fish Richness	7
Percent Native	98.41

Little Powder	Little Powder River_009B_06_R7	7/27/06	45.10466	black bullhead		4	
10090208			-105.33071	channel catfish	23		
				common carp		211	
				creek chub	7		
				fathead minnow	391		
				green sunfish		48	
				sand shiner	1367		
				shorthead redhorse	8		
				white sucker	44		

Total Herp Number	0	Total Fish Number	1840	263	2103
Herp Richness	0	Fish Richness			9
Total Site Richness	6	Native Fish Richness			6
		Percent Native			87.49

Little Powder River Summary	**5/16/06**	**Total Fish Number**	**2916**		
Sampled 2 times at 1 site	**7/27/06**	**Fish Richness**	**11**		
		Percent Native	**90.54**		
		Total Site Richness	**11**		

Lower Musselshell	Lodgepole Creek_030A_06_R7	7/5/06	47.2976	common carp	25		
10040205			-107.89516	fathead minnow	38		
				sand shiner	5		
				boreal chorus frog			16
				common gartersnake			1
				northern leopard frog			2

Total Herp Number	19	Total Fish Number	68	0	68
Herp Richness	3	Fish Richness			3
Total Site Richness	6	Native Fish Richness			2
		Percent Native			100

Lower Musselshell	Lodgepole Creek_069B_06_R7	7/6/06	47.32141	common carp		103	
10040205			-107.93108	creek chub	140		
				fathead minnow	229		
				green sunfish		25	
				Hybognathus sp.	126		
				plains minnow	3		
				sand shiner	94		
				western silvery minnow	2		

				boreal chorus frog			20
				boreal chorus frog tadpole			47
				northern leopard frog tadpole			100
				northern leopard frog			100
				Woodhouse's toad			2
				tiger salamander larvae			2
				plains gartersnake			1
				painted turtle			1
Total Herp Number	273		Total Fish Number		594	128	722
Herp Richness	6		Fish Richness				7
Total Site Richness	12		Native Fish Richness				5
			Percent Native				82.27
Lodgepole Creek Summary		**7/5/06**		**Total Fish Number**	**790**		
Sampled 3 times at 3 site		**7/6/06**		**Fish Richness**	**7**		
One without fish				**Percent Native**	**83.8**		
				Total Site Richness	**14**		
Lower Yellowstone	M. Fork Bad Route Crk_058A	8/8/06	47.10686	brook stickleback	1		
10100004	06_R7		-105.42166	creek chub	186		
				white sucker	79		
				common gartersnake			1
				northern leopard frog			25
Total Herp Number	26		Total Fish Number		266	0	266
Herp Richness	2		Fish Richness				3
Total Site Richness	5		Native Fish Richness				3
			Percent Native				100
Lower Yellowstone	O'Brien Creek_032A_06_R7	7/18/06	47.60305	black bullhead		5	
10100004			-104.18739	brassy minnow	45		
				common carp		4	
				creek chub	7		
				fathead minnow	54		
				stonecat	2		
				white sucker	3		
				northern leopard frog			50
Total Herp Number	50		Total Fish Number		111	9	120
Herp Richness	1		Fish Richness				7
Total Site Richness	8		Native Fish Richness				5
			Percent Native				92.5
LowerTongue	Pumpkin Creek_081A_06-R7	5/18/06	46.07641	fathead minnow	61		

10090102			-105.5521	green sunfish		10	
				white sucker	2		
				plains gartersnake			1

Total Herp Number	1	Total Fish Number	63	10	73
Herp Richness	1	Fish Richness			3
Total Site Richness	4	Native Fish Richness			2
		Percent Native			86.3

LowerTongue	Pumpkin Creek_081B_06-R7	8/9/06	46.07594	common carp		2	
10090102			-105.55361	fathead minnow	870		
				green sunfish		45	
				sand shiner	11		
				western silvery minnow	12		
				white sucker	2		
				snapping turtle			1

Total Herp Number	1	Total Fish Number	895	47	942
Herp Richness	1	Fish Richness			6
Total Site Richness	7	Native Fish Richness			4
		Percent Native			95.01

Pumpkin Creek Summary	**5/18/06**	**Total Fish Number**	**1014**
Sampled 2 times at 2 site	**8/9/06**	**Fish Richness**	**7**
		Percent Native	**94.38**
		Total Site Richness	**9**

Lower Musselshell	Rattlesnake Creek	7/11/00	46.81223	black bullhead		1	
10040205			-107.6871	common carp		23	
				creek chub	1		
				fathead minnow	44		
				green sunfish		3	
				Hybognathus sp.	241		
				plains minnow	5		
				sand shiner	1		

Total Herp Number	0	Total Fish Number	292	27	319
Herp Richness	0	Fish Richness			7
Total Site Richness	7	Native Fish Richness			4
		Percent Native			91.54

Rosebud	Rosebud Creek_03A_06_R7	5/22/06	45.2201	creek chub	41
10100003			-106.95171	fathead minnow	135
				mountain sucker	1
				white sucker	62

					northern leopard frog			1
Total Herp Number	1		Total Fish Number		239	0	239	
Herp Richness	1		Fish Richness				4	
Total Site Richness	5		Native Fish Richness				4	
			Percent Native				100	
Rosebud	Rosebud Creek_03B_06_R7	8/1/06	45.21995	northern leopard frog			4	
10100003			-106.95178					
Total Herp Number	4		Total Fish Number		0	0	0	
Herp Richness	1		Fish Richness				0	
Total Site Richness	1		Native Fish Richness				0	
			Percent Native				0	
Rosebud	Rosebud Creek_04A_06_R7	5/22/06	45.21564	creek chub	28			
10100003			-106.97564	fathead minnow	5			
				white sucker	1			
				gophersnake			1	
Total Herp Number	1		Total Fish Number		34	0	34	
Herp Richness	1		Fish Richness				3	
Total Site Richness	4		Native Fish Richness				3	
			Percent Native				100	
Rosebud	Rosebud Creek_04B_06_R7	8/1/06	45.21564	creek chub	1			
10100003			-106.97564	fathead minnow	7			
				western rattlesnake			1	
				northern leopard frog			5	
				common gartersnake			2	
Total Herp Number	8		Total Fish Number		8	0	8	
Herp Richness	3		Fish Richness				2	
Total Site Richness	5		Native Fish Richness				2	
			Percent Native				100	
Rosebud	Rosebud Creek_05A_06_R7	5/22/06	45.21363	fathead minnow	265			
10100003			-107.00193	lake chub	185			
				longnose dace	13			
				white sucker	66			
Total Herp Number	0		Total Fish Number		529	0	529	
Herp Richness	0		Fish Richness				4	
Total Site Richness	3		Native Fish Richness				4	
			Percent Native				100	
Rosebud	Rosebud Creek_05B_06_R7	8/1/06	45.21363	creek chub	2			

10100003				-107.00193	fathead minnow	641		
					lake chub	178		
					longnose dace	13		
					white sucker	78		
					painted turtle			1
Total Herp Number	1				Total Fish Number	912	0	912
Herp Richness	1				Fish Richness			5
Total Site Richness	6				Native Fish Richness			5
					Percent Native			100

Rosebud Creek Summary	**5/22/06**		**Total Fish Number**	**1722**	
Sampled 6 times at 3 sites	**5/22/06**		**Fish Richness**	**6**	
Two with no fish	**5/22/06**		**Percent Native**	**100**	
	8/1/06		**Total Site Richness**	**11**	
	8/1/06	**8/1/06**			

Lower Yellowstone	Sand Creek_036A_06_R7	6/21/06	47.04094	flathead chub	21		
10100004			-104.81094	longnose dace	3		
				sand shiner	1		
				western silvery minnow	1		
Total Herp Number	0			Total Fish Number	26	0	26
Herp Richness	0			Fish Richness			4
Total Site Richness	4			Native Fish Richness			4
				Percent Native			100

Lower Yellowstone - Sunday	Sarpy Creek_80A_06RE_R7	5/15/06	45.85068	northern leopard frog			1
			-107.106	snapping turtle			2
10100001				tiger salamander larvae			15
Total Herp Number	18			Total Fish Number	0	0	0
Herp Richness	3			Fish Richness			0
Total Site Richness	3			Native Fish Richness			0
				Percent Native			0

Lower Yellowstone - Sunday	Sarpy Creek_80B_06RE_R7	7/24/06	45.85045	northern leopard frog			20
			-107.10529	plains gartersnake			1
10100001							
Total Herp Number	21			Total Fish Number	0	0	0
Herp Richness	2			Fish Richness			0
Total Site Richness	2			Native Fish Richness			0
				Percent Native			0

Sarpy Creek Summary		**5/15/06**		**Total Fish Number**	**0**			
Sampled 2 times at 2 sites		**7/24/06**		**Fish Richness**	**0**			
Two with no fish				**Percent Native**	**NA**			
				Total Site Richness	**4**			
Lower Yellowstone 10100004	Sears Creek_037A_06_R7	7/18/06	47.54731 -104.27169	flathead chub	6			
				goldeye	2			
				sand shiner	2			
				sauger	1			
				stonecat	1			
Total Herp Number	0		Total Fish Number		12	0	12	
Herp Richness	0		Fish Richness				5	
Total Site Richness	5		Native Fish Richness				5	
			Percent Native				100	
Lower Yellowstone 10100004	Sears Creek_037B_06_R7	7/18/06	47.53212 -104.31071	brook stickleback	120			
				creek chub	67			
				fathead minnow	40			
				longnose dace	6			
				white sucker	102			
				northern leopard frog tadpole				8
Total Herp Number	8		Total Fish Number		335	0	335	
Herp Richness	1		Fish Richness				5	
Total Site Richness	6		Native Fish Richness				5	
			Percent Native				100	
Sears Creek Summary		**7/18/06**		**Total Fish Number**	**347**			
Sampled 2 times at 2 sites		**7/18/06**		**Fish Richness**	**10**			
				Percent Native	**100**			
				Total Site Richness	**11**			
Lower Powder 10090209	Sheep Creek_046A_06_R7	7/17/06	46.30221 -105.27711	black bullhead		57		
				common carp		266		
				fathead minnow	327			
				green sunfish		6		
				Hybognathus sp.	25			
				plains minnow	6			
				white sucker	1			
				Woodhouse's toad				8
Total Herp Number	8		Total Fish Number		359	329	688	
Herp Richness	1		Fish Richness				6	

Total Site Richness	7			Native Fish Richness				3
				Percent Native				52.18
Lower Yellowstone	Smith Creek_039A_06_R7	6/26/06	47.42756	black bullhead		3		
10100004			-104.31219	brassy minnow	1			
				brook stickleback	1			
				common carp		8		
				creek chub	2			
				fathead minnow	445			
				golden shiner		2		
				green sunfish		25		
				Hybognathus sp.	2			
				northern pike		1		
				river carpsucker	4			
				sand shiner	241			
				shorthead redhorse	5			
				white sucker	33			
				common gartersnake				1
Total Herp Number	1			Total Fish Number	734	39		773
Herp Richness	1			Fish Richness				14
Total Site Richness	15			Native Fish Richness				9
				Percent Native				94.95
O'Fallon	S. Fork Sandstone Creek_067B	8/10/06	46.32714	black bullhead		957		
10100005	06_R7		-104.46957	black crappie		8		
				green sunfish		26		
				largemouth bass		63		
				northern pike		5		
				yellow perch		18		
				northern leopard frog				15
Total Herp Number	15			Total Fish Number	0	1077		1077
Herp Richness	1			Fish Richness				6
Total Site Richness	7			Native Fish Richness				0
				Percent Native				0
S. Fork Sandstone Creek Summary		**8/9/06**		**Total Fish Number**	**1077**			
Sampled 2 times at 2 sites		**8/10/06**		**Fish Richness**	**6**			
One with no fish				**Percent Native**	**0**			
				Total Site Richness	**7**			
Lower Powder	Spring Creek_060B_06_R7	7/26/06	45.8196	black bullhead		67		
10090209			-104.85271	fathead minnow	3			

				green sunfish		4	
				sand shiner	1		
				northern leopard frog			20
				plains gartersnake			1
Total Herp Number	21		Total Fish Number		4	71	75
Herp Richness	2		Fish Richness				4
Total Site Richness	6		Native Fish Richness				2
			Percent Native				5.3
Lower Powder	Spring Creek_060A_06_R7	4/13/06	45.82289	black bullhead		5	
10090209			-104.85794	creek chub	11		
				fathead minnow	81		
				green sunfish		13	
				plains killifish		18	
				sand shiner	40		
				white sucker	1		
Total Herp Number	0		Total Fish Number		133	36	169
Herp Richness	0		Fish Richness				7
Total Site Richness	7		Native Fish Richness				4
			Percent Native				78.7
Spring Creek Summary	**4/13/06**		**Total Fish Number**	**244**			
Sampled 2 times at 2 sites	**7/26/06**		**Fish Richness**	**7**			
			Percent Native	**56.15**			
			Total Site Richness	**7**			
Fort Peck Reservoir	Squaw Creek_040A_06_R7	7/5/06	47.46141	creek chub	36		
10040104			-107.80096	fathead minnow	66		
				plains minnow	3		
Total Herp Number	0		Total Fish Number		105	0	105
Herp Richness	0		Fish Richness				3
Total Site Richness	3		Native Fish Richness				3
			Percent Native				100
Lower Tongue	Squaw Creek_053B_06_R7	6/8/06	46.27506	plains minnow	3		
10090102			-107.71805	tiger salamander larvae			21
Total Herp Number	21		Total Fish Number		3	0	3
Herp Richness	1		Fish Richness				1
Total Site Richness	2		Native Fish Richness				1
			Percent Native				100
Lower Yellowstone-Si	Unnamed Creek_007A_06_R7	5/17/06	45.22753	creek chub	1		

10100001				-106.49899				
Total Herp Number	0			Total Fish Number	1	0	1	
Herp Richness	0			Fish Richness			1	
Total Site Richness	1			Native Fish Richness			1	
				Percent Native			100	
Upper Tongue	Youngs Creek_002A_06_R7	5/23/06	45.01468	creek chub	28			
10090101			-106.97492	longnose dace	15			
				white sucker	8			
Total Herp Number	0			Total Fish Number	51	0	51	
Herp Richness	0			Fish Richness			3	
Total Site Richness	3			Native Fish Richness			3	
				Percent Native			100	
Upper Tongue	Youngs Creek_002B_06_R7	8/2/06	45.01468	creek chub	6			
10090101			-106.97492	fathead minnow	7			
				white sucker	4			
				common gartersnake			1	
				northern leopard frog			7	
Total Herp Number	8			Total Fish Number	17	0	17	
Herp Richness	2			Fish Richness			3	
Total Site Richness	5			Native Fish Richness			3	
				Percent Native			100	

Youngs Creek Summary	**5/23/06**	**Total Fish Number**	**68**
Sampled 2 times at 1 site	**8/2/06**	**Fish Richness**	**4**
		Percent Native	**100**
		Total Site Richness	**6**

Region 7 Summary

Sites with fish or herps	**57**	**Total Fish Number**	**16,711**
Sites with fish	**48**	**Nonnative Fish Numbers**	**2582**
Sites with greater than 25% nonnative fish	**6**	**Fish Species**	**26**
Sites with equal or greater number nonnative species	**3**	**Native Fish Species**	**19**
Sites with 100% native fish species	**23**	**Percent Native Fish**	**84.55%**

Percentage of sites w/fish and only native fish species	48%	Herp Species	10

Stream data = multiple sample sites on a stream		**Stream Data exists for 19 streams**	
Streams with 100% native fish	**5**	**Streams w/greater than 25% nonnative fish**	**3**
Streams with 99% or greater native fish	**7**		
Cabin Creek	99.31%	Sears Creek	100%
Clear Creek	99.74%	Youngs Creek	100%
Alkali Creek	100%	First Hay Creek	100%
Rosebud Creek	100%		

REGION 4,5,6,7 SUMMARY

Sites with fish or herps	306	Total Fish Number	164,884
Sites with fish	268	Nonnative Fish	8737
Sites with greater than 25% nonnative fish	24	Total Fish Species	45
Sites with equal or greater number nonnative species	18	Native Fish Species	27
Sites with 100% native fish species	129	Nonnative Species	18
Percentage of sites w/fish and only native fish species	48.51%	Percent Native Fish	94.70%
		Herp Species	16

Stream data = multiple sample sites on a stream	*	
Streams with greater than 25% nonnative fish	5	
Streams with 100% native fish species	11	*This data includes only region 4, 5 and 7
Streams with 99% or greater native fish	19	

Appendix B. Fish and Habitat Sampling Protocol for Prairie Streams

1. ***Site location***. -Locate the sampling site using GPS for random sites, or by convenience for non-random sites. The GPS location will be the center of the reach, this is where you place the "F" flag (see Step 2). If the site is dry, shift the reach up or downstream to capture the most wetted channel possible on the parcel of land where you have permission for sampling.

2. ***Laying out the sample reach***. -Lay out a 300 m sample reach using a measuring tape and a set of 11 pin flags (labeled A-K). Follow the curves in the stream channel with the measuring tape; do not cut across curves. To avoid spooking fish, walk along the bank, not in the stream. Place a flag every 30 m. The "A" flag will be at the downstream end; the "K" flag will be at the upstream end of the reach. The "F" flag will go in the center of the reach.

3. ***Block nets***. -Place block nets (these can be old seines, 1/4" mesh) at the upstream (K flag) and downstream (A flag) ends of the sample reach if the water in the channel is continuous, deeper than 25 cm, and relatively clear. This prevents fish from leaving the sample reach.

4. ***Seining***. -Select the seine based on the size of the stream to be sampled. The seine length to be used should be approximately equal to or slightly greater than the stream width, and the seine height should be about 1.5 to 2 times greater than the depth of the stream. Dip nets can be used in very shallow, small habitats. Seining begins at the upstream end (K flag) and proceeds downstream to the A flag. Two people perform seining, one on each end of the seine. In pools, the seine is pulled down the stream channel, using the shore and other natural habitat features as barriers. Begin with the seine rolled up on each seine braille. The seine is typically set perpendicular to shore and hauled downstream parallel to shore. As you proceed, let out enough seine so that the seine forms a "U" shape, but not so much that the net is hard to control. Adjust the length of the seine by rolling or un-rolling net on the seine braille. The speed of seining should be fast enough to maintain the "U" shape, but not so fast that the floats become submerged, or that the seine's lead line come way up off the bottom of the stream. If rocks or other snags are on the bottom, the seine can be lifted off the bottom for a moment to avoid the snag, or one of the netters can bring the seine around the snag to avoid it, all the while maintaining the forward progress of the seine. Similarly, areas of dense aquatic vegetation can be avoided. It is important not to stop the forward progress, because fish will swim out of the seine. It is better to avoid a snag while keeping moving than to become snagged, which will allow fish to escape. In "snaggy" waters, keep more of your seine rolled up for better control.

   Proceed downstream while seining. In narrow streams, the entire channel width is spanned with the seine. In wider streams, one person walks along the shore, while the other wades through the channel. The length of each seine haul will depend on the natural features of the stream channel and shoreline, but seine hauls should not normally be more than 60 or 90 m long. Side channel bars or the end of a standing pool are good areas to haul out or "beach" the seine. Where a large bar or end of a standing pool is present both netters can simply run the net up on the shore. In streams with steep banks or lack of obvious seine beaching areas the "snap" technique can be used. At the end of the haul, the person near shore stops, while the person farthest out turns into shore, quickly,

until the seine is up against the bank. The two netters then walk away from each other, taking the slack out of the seine, and keeping the seine's lead line up against the bank.

In riffles, with moderate to fast current, the "kick seine" technique can be used. The seine is held stationary in a "U" shape, while the other team member disturbs the substrate immediately upstream of the net. Then the net is quickly "snapped" out of the water by both team members using an upstream scooping motion.

Seine the entire 300 m reach, covering the linear distance at least once. If part of the 300 m is dry, just skip it. If the stream is much wider than your seine, do extra seine hauls in the large pools to cover the extra width. Sample all habitat types (shoreline, thalweg, side channels, backwaters).

After each seine haul, place fish in a bucket. If the water is warm, or you have captured many fish, place fish in a fish bag to keep them alive until seining is completed. If you have to work up fish before seining is completed, release processed fish in an area that has already been seined, as far away from the area remaining to be seined as possible (or outside of the block nets). Large fish such as northern pike, common carp, white sucker, shorthead redhorse, or channel catfish, can be measured, given a small clip to the lower caudal fin and released immediately.

4. ***Processing captured fish***. -Record the species of each fish captured, and measure 20 "randomly" selected fish to the nearest millimeter, total length. If the species of fish is unknown, try to at least record it as Unknown type 1, Unknown type 2, etc. Keep track of and record the minimum and maximum length of each species.

   For each species, preserve a sub sample of at least 10 individuals per site to serve as voucher specimens. Record a small letter "v" next to the recorded length of the fish that is vouchered to allow for later validation. For *Hybognathus* spp., voucher up to 20 individuals per site. Kill the fish to be vouchered by placing them in a small bucket or 1000 ml nalgene jar with an overdose solution of MS-222. After fish processing is completed, drain the MS-222 solution and place the fish in a 1000 ml nalgene jar with a 10% solution of formalin (in clear water, if possible). For specimens longer than 150 mm, an incision should be made on the right ventral side of the abdomen after death, to allow fixative to enter the body cavity. The volume of formalin solution should be approximately equal to the twice the volume of fish tissue to be preserved, and the fish volume should be considered water when concentrations are determined. For example, if the fish take up 250 ml of the 1000 ml volume, you need about 500 ml of 10 % formalin solution (75 ml formalin and 425 ml water) in the 1000 ml nalgene jar. If necessary, use a second jar to accommodate all of the specimens. Use safety glasses and gloves when pouring formalin. Do not let the fish "cook" in the sun for a while and preserve them later, do it as soon as possible. Label all jars inside and out with Site, Site Number, Lat/Long, Date, Collectors names. Use pencil on Write-In-the-Rain or high rag paper for inside labels (just put the label right in with the fish), use a sticker label on the outside, cover it with clear (ScotchPad high performance packing tape pad 3750-P). Fish specimens should be left in formalin solution for at least 2-7 days. Fish specimens must have formalin solution soaked out before being handled extensively. Specimens should be soaked in water for at least 2 days, and water should be changed at least four times during this period. After

soaking out the formalin, the fish specimens should be placed in either 70% ethanol or 40% isopropanol for long-term storage.

6. ***Habitat survey***. -Channel width, depth of water, and substrate will be measured at 11 transects perpendicular to the stream channel (located at Flags A-K), and along the thalweg in 10 thalweg intervals between transects (deepest part of channel). Stream width is measured to the nearest 0.1 m, depth is measured to the nearest cm, and substrate sizes and codes are on the data sheet. One person will be in the stream taking measurements while the other records data. Record the Latitude and Longitude (in decimal degrees) of the F flag, the stream name, site number, the date, the flow status (flowing, continuous standing water, or interrupted standing water) and the names of the crewmembers on the data sheet. Take photographs of the site, capturing as much of the sampling reach as possible. Make sure the date feature on the camera is turned on, to allow for later identification of site photographs.

   Transects. -Start on the left bank (facing downstream) at Flag A. Measure and record the wetted width of the channel to the nearest 0.1 m. Measure and record (separated by a comma on the data sheet) five equally spaced depth and substrate measurements across the wetted stream channel:

      1. Left Bank-5 cm from the left bank;
      2. Left Center-halfway between the Center and the Left Bank;
      3. Center-center of the wetted stream;
      4. Right Center-halfway between the Center and the Right Bank;
      5. Right Bank-5 cm from the right bank

   Thalweg. -Begin by recording the depth and substrate 3 m upstream of the transect, in the deepest part of the channel (thalweg). Proceed up the thalweg to Flag B, recording depth and substrate every 3 m along the thalweg. You will record a total of 10 depths and substrates between each pair of transects. If the stream channel is dry, record a 0 for depth, and record the substrate. The last thalweg measurement point should fall on the next upstream transect. The 3 m interval can be estimated, and it is helpful if the data recorder helps to keep the person in the stream from “squeezing” or “stretching” the thalweg measurements.

Repeat this procedure until all 11 transects and 10 thalweg intervals are completed.

Appendix B continued.

Gear List

- 20', x 6' x ¼" heavy delta seine
- 15' x 4' x ¼" heavy delta seine
- 30' x 6' x ¼" heavy delta seine (or delta) with 6' x 6' x 6' bag
- Fish bags: nylon diver's bags, ¼" mesh 18" x 30"
- Mudders – $109.00 at Ben Meadows
- Lug sole wading boots (Cabelas)
- Habitat pole (I make habitat poles out of 1.0" OD PVC pipe. 1.5 m long including caps. Score the pipe every 10 cm with a pipe cutter, then use a Sharpie to mark rings around the pole at the scores, and label the pole 10, 20, 30, etc. 5 cm marks are made between the 10 cm rings, you can visually estimate between the 5 cm marks to get to the nearest cm. Spray or brush a Urethane finish on the pole or your marks will come off fast with sunscreen and bug dope.)
- Metric 30 m tape (Ace Hardware actually carries a tape with metric on one side)
- Labels and tape pads for fish samples
- 1000 ml Nalgene jars
- Formalin (buffered is great, but more expensive-I throw a Rolaids in each jar of fish to neutralize the acidity)
- Block nets, Tent stakes
- Stream Conductivity meter
- Thermometer
- Turbidity meter (LaMotte, Ben Meadows 224805, $795.00-might try the "transparency tube" Ben Meadows 224196, $52.95)
- Waders (breathable waders are essential for this work-Cabelas has them for about $100/pair), hip boots are usually too low
- Measuring boards, one short 300 mm (half a 6" PVC works well for *Hybognathus* "fin flotation", one long, ~0.5-1 m, you can just use a meter stick for the odd big fish)
- Hand lens
- Small 1 gallon red bucket from Ace for doping fish
- 5 gallon buckets
- MS-222
- Clipboard
- 11 Pin flags labeled A-F

Appendix C. Sample of habitat data sheet.

Site:_____ Date:_____ Water Flowing_____

Lat/Long:_____ Observers:_____ Continuous Standing Water_____
Interrupted Standing Pools_____

Transect Cross Section

Transect	Width (XX.Xm)	Left Bank Depth/Sub	Left Center Depth/Sub	Center Depth/Sub	Right Center Depth/Sub	Right Bank Depth/Sub	Temp_____°C Ph_____ O_2_____mg/L Salinity_____PPT Conductivity_____US
A		/	/	/	/	/	BR=Bedrock(>4000mm) (larger than a car)
B		/	/	/	/	/	BL=Boulder(250 to 4000mm) (basketball to car)
C		/	/	/	/	/	CB=Cobble(64-254mm) (tennis ball to basketball)
D		/	/	/	/	/	CG=Coarse Gravel(16 - 64mm) (marble to tennis ball)
E		/	/	/	/	/	FG=Fine Gravel(2 to 16mm) (ladybug to marble)
F		/	/	/	/	/	SA=Sand(0.06 to 2 mm) (gritty up to ladybug size)
G		/	/	/	/	/	FN=Silt/Clay/Muck (not gritty)
H		/	/	/	/	/	HP=Hardpan(Firm, Consolidated, Fine Substrate)
I		/	/	/	/	/	WD=Wood (any size)
J		/	/	/	/	/	OT=Other (describe in comments)
K		/	/	/	/	/	

Thalweg Profile

Station	A-B Depth/Sub	B-C Depth/Sub	C-D Depth/Sub	D-E Depth/Sub	E-F Depth/Sub	F-G Depth/Sub	G-H Depth/Sub	H-I Depth/Sub	I-J Depth/Sub	J-K Depth/Sub
1	/	/	/	/	/	/	/	/	/	/
2	/	/	/	/	/	/	/	/	/	/
3	/	/	/	/	/	/	/	/	/	/
4	/	/	/	/	/	/	/	/	/	/
5	/	/	/	/	/	/	/	/	/	/
6	/	/	/	/	/	/	/	/	/	/
7	/	/	/	/	/	/	/	/	/	/
8	/	/	/	/	/	/	/	/	/	/
9	/	/	/	/	/	/	/	/	/	/
10	/	/	/	/	/	/	/	/	/	/

Comments/Observations:

Appendix C. Sample of fish data sheet

Site: ______ Date: ______ water flowing? ______

Page___of___ continuous standing water? ______

Lat/Long: ______ Observers: ______ interrupted standing pools? ______

Species		Total Lengths (mm)					
	Total Count						max length
							min length
	Total Count						max length
							min length
	Total Count						max length
							min length
	Total Count						max length
							min length
	Total Count						max length
							min length
	Total Count						max length
							min length
	Total Count						max length
							min length